SANTA CRUZ BIOTECHNOLOGY, INC.

p-eIF2α (Ser 49): sc-293100

SANTA CRUZ BIOTECHNOLOGY
The Power to Question

BACKGROUND

The initiation of protein synthesis in eukaryotic cells is regulated by interactions between protein initiation factors and RNA molecules. The eukaryotic initiation complex is composed of three subunits, designated eIF2α, eIF2β and eIF2γ (eukaryotic translation initiation factor 2 α, β and γ, respectively), all of which work in concert to form a ternary complex with GTP and tRNA in the early stages of protein synthesis. eIF2α, also known as EIF2S1 or EIF2, is a 315 amino acid subunit of the eukaryotic initiation complex that functions to bind tRNA to the 40S ribosomal subunit (in a GTP-dependent manner), thereby initiating translation. In addition, the phosphorylation state of eIF2α controls the rate of tRNA translation. When eIF2α is not phosphorylated, translation occurs at a normal rate. However, upon phosphorylation by one of several kinases, eIF2α is stabilized, thus preventing the GDP/GTP exchange reaction and slowing translation.

REFERENCES

1. Trachsel, H., et al. 1978. Binding and release of eukaryotic initiation factor eIF-2 and GTP during protein synthesis initiation. Proc. Natl. Acad. Sci. USA 75: 204-208.
2. Benne, R., et al. 1979. The activity of eukaryotic initiation factor eIF-2 in ternary complex formation with GTP and Met-tRNA. J. Biol. Chem. 254: 3201-3205.

CHROMOSOMAL LOCATION

Genetic locus: EIF2S1 (human) mapping to 14q23.3; Eif2s1 (mouse) mapping to 12 C3.

SOURCE

p-eIF2α (Ser 49) is a rabbit polyclonal antibody raised against a short amino acid sequence containing Ser 49 phosphorylated eIF2α of human origin.

PRODUCT

Each vial contains 100 µg IgG in 1.0 ml PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

p-eIF2α (Ser 49) is recommended for detection of Ser 49 phosphorylated eIF2α 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 immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

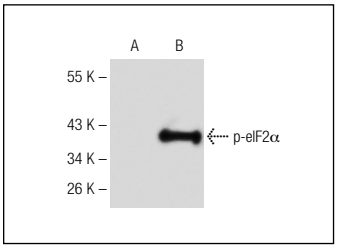
Suitable for use as control antibody for eIF2α siRNA (h): sc-35272, eIF2α siRNA (m): sc-35273, eIF2α shRNA Plasmid (h): sc-35272-SH, eIF2α shRNA Plasmid (m): sc-35273-SH, eIF2α shRNA (h) Lentiviral Particles: sc-35272-V and eIF2α shRNA (m) Lentiviral Particles: sc-35273-V.

Positive Controls: HEK293 whole cell lysate: sc-45136, HeLa whole cell lysate: sc-2200 or HeLa + serum-starved cell lysate: sc-24693.

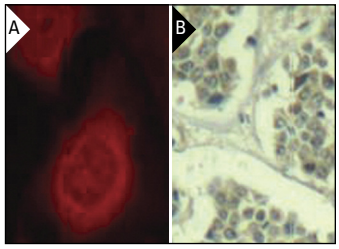
RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Western Blotting Luminol Reagent: sc-2048 and Lambda Phosphatase: sc-200312A. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 4) Immunohistochemistry: use ImmunoCruz™: sc-2051 or ABC: sc-2018 rabbit IgG Staining Systems.

DATA



p-eIF2α (Ser 49): sc-293100. Western blot analysis of eIF2α phosphorylation expression in untreated (**A**) and serum-starved (**B**) HeLa whole cell lysates.



p-eIF2α (Ser 49): sc-293100. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear and cytoplasmic localization (**A**) and immunoperoxidase staining of formalin-fixed, paraffin-embedded human breast carcinoma tissue showing nuclear and cytoplasmic localization (**B**).

SELECT PRODUCT CITATIONS

1. Ben Mosbah, I., et al. 2010. Endoplasmic reticulum stress inhibition protects steatotic and non-steatotic livers in partial hepatectomy under ischemia-reperfusion. Cell Death Dis. 1: e52.
2. Jiménez-Castro, M.B., et al. 2012. Tauroursodeoxycholic acid affects PPARγ and TLR4 in Steatotic liver transplantation. Am. J. Transplant. 12: 3257-3271.
3. Hodges, E.N. and Connor, J.H. 2013. Translational control by negative-strand RNA viruses: methods for the study of a crucial virus/host interaction. Methods 59: 180-187.

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 or our catalog for detailed protocols and support products.