SANTA CRUZ BIOTECHNOLOGY, INC.

p-eIF4E (Ser 209): sc-12885

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Eukaryotic initiation factor 4E (eIF4E) binds to the mRNA cap structure thereby mediating the initiation of translation. eIF4E interacts with eIF4G, which serves as a scaffold protein for the assembly of eIF4E and eIF4A, to form the eIF4F complex. The activity of eIF4E is regulated by at least two mechanisms: first, inactivation through binding to 4E-BP1 in quiescent cells and second, mitogens, growth factors, hormones and some types of stress induce phosphorylation of eIF4E at serine 209. Phosphorylation of eIF4E enhances the affinity of eIF4E for capped mRNA and for eIF4G, generating a more stable eIF4F complex. Mitogens stimulate phosphorylation of 4E-BP1 causing the release of eIF4E. Thus, eIF4E is a phosphoprotein whose phosphorylation state positively correlates with cell proliferation and growth. A good candidate for the eIF4E kinase is MAP kinase-interacting protein kinase-1, which has been shown to phosphorylate eIF4E at serine 209.

CHROMOSOMAL LOCATION

Genetic locus: EIF4E (human) mapping to 4q23; Eif4e (mouse) mapping to 3 G3.

SOURCE

p-eIF4E (Ser 209) is available as either goat (sc-12885) or rabbit (sc-12885-R) affinity purified polyclonal antibody raised against a short amino acid sequence containing Ser 209 phosphorylated eIF4E 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-12885 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

p-eIF4E (Ser 209) is recommended for detection of Ser 209 phosphorylated eIF4E 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, 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).

p-eIF4E (Ser 209) is also recommended for detection of correspondingly phosphorylated eIF4E in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for eIF4E siRNA (h): sc-35284, eIF4E siRNA (m): sc-35285, eIF4E shRNA Plasmid (h): sc-35284-SH, eIF4E shRNA Plasmid (m): sc-35285-SH, eIF4E shRNA (h) Lentiviral Particles: sc-35284-V and eIF4E shRNA (m) Lentiviral Particles: sc-35285-V.

Molecular Weight of p-eIF4E: 25 kDa.

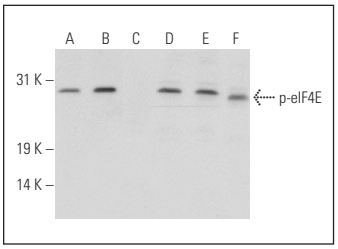
STORAGE

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

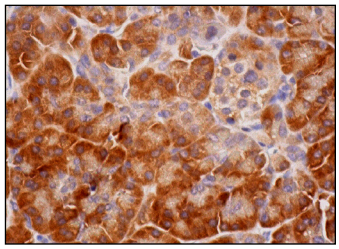
RESEARCH USE

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

DATA



Western blot analysis of phosphorylated eIF4E expression in untreated (**A**,**D**), insulin-treated (**B**,**E**) and serum starved then, serum treated (**C**,**F**) NIH/3T3 whole cell lysates. Blots were probed with p-eIF4E (Ser 209)-R: sc-12885-R (**A**,**B**,**C**) and eIF4E (FL-217): sc-13963 preincubated with its cognate phosphorylated peptide (**D**,**E**,**F**).



p-eIF4E (Ser 209)-R: sc-12885-R. Immunoperoxidase staining of formalin fixed, paraffin-embedded human pancreas tissue showing cytoplasmic staining of exocrine glandular cells and Islets of Langerhans.

SELECT PRODUCT CITATIONS

1. Tao, L., et al. 2006. Elemene displays anti-cancer ability on laryngeal cancer cells *in vitro* and *in vivo*. Cancer Chemother. Pharmacol. 58: 24-34.
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3. Castelló, A., et al. 2009. Regulation of host translational machinery by African swine fever virus. PLoS Pathog. 5: e1000562.
4. Fang, Y.X., et al. 2010. Development of chimeric gene regulators for cancer-specific gene therapy with both transcriptional and translational targeting. Mol. Biotechnol. 45: 71-81.
5. Kuo, S.H., et al. 2011. Lack of compensatory pAKT activation and eIF4E phosphorylation of lymphoma cells towards mTOR inhibitor, RAD001. Eur. J. Cancer 47: 1244-1257.
6. Morad, S.A., et al. 2012. A novel semisynthetic inhibitor of the FRB domain of mammalian target of rapamycin blocks proliferation and triggers apoptosis in chemoresistant prostate cancer cells. Mol. Pharmacol. 83: 531-541.
7. Coëffier, M., et al. 2013. Enteral delivery of proteins stimulates protein synthesis in human duodenal mucosa in the fed state through a mammalian target of rapamycin-independent pathway. Am. J. Clin. Nutr. 97: 286-294.
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9. Jiang, N., et al. 2015. 60S ribosomal protein L35 regulates β-casein translational elongation and secretion in bovine mammary epithelial cells. Arch. Biochem. Biophys. 583: 130-139.