SANTA CRUZ BIOTECHNOLOGY, INC.

p-eIF2α (Ser 52): sc-12412

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Phosphorylation of the α subunit of eukaryotic initiation factor 2 (eIF2α) is known to be an important translational control mechanism. Regulation of mammalian eIF2α activity is directly governed by specific phosphorylation on Serine 52. In mammalian cells, eIF2α is phosphorylated at Serine 52 by at least two kinases, the heme-controlled repressor and the interferon-inducible double stranded RNA-dependent protein kinase. This phosphorylation event results in an inhibition in the exchange of bound nucleotides and the recycling of eIF2α. In addition, phosphorylation of eIF2α blocks the GDP-GTP exchange activity of eIF2β, resulting in the suppression of protein synthesis.

CHROMOSOMAL LOCATION

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

SOURCE

p-eIF2α (Ser 52) is available as either goat (sc-12412) or rabbit (sc-12412-R) affinity purified polyclonal antibody raised against a short amino acid sequence containing Ser 52 phosphorylated eIF2α of human origin.

PRODUCT

Each vial contains either 200 µg (sc-12412) or 100 µg (sc-12412-R) IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-12412 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

p-eIF2α (Ser 52) is recommended for detection of Ser 52 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), 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-eIF2α (Ser 52) is also recommended for detection of correspondingly phosphorylated eIF2α in additional species, including equine, canine, bovine, porcine and avian.

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: HeLa whole cell lysate: sc-2200, HEK293 whole cell lysate: sc-45136 or IFNα-treated K-562 whole cell lysate.

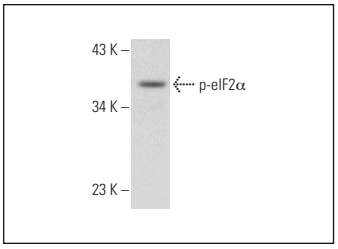
STORAGE

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

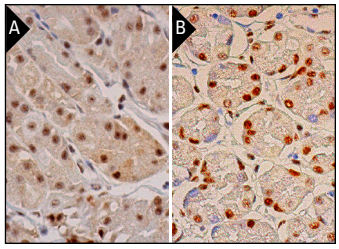
RESEARCH USE

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

DATA



p-eIF2α (Ser 52): sc-12412. Western blot analysis of eIF2α phosphorylation in HeLa whole cell lysate.



p-eIF2α (Ser 52): sc-12412. Immunoperoxidase staining of formalin fixed, paraffin-embedded human upper stomach tissue showing nucleolar, nuclear and cytoplasmic staining of glandular cells (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human lower stomach tissue showing nucleolar and nuclear staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Igarashi, J., et al. 2004. Activation of heme-regulated eukaryotic initiation factor 2α kinase by nitric oxide is induced by the formation of a five-coordinate NO-heme complex: optical absorption, electron spin resonance and resonance raman spectral studies. J. Biol. Chem. 279: 15752-15762.
2. Degasperi, G.R., et al. 2009. Reactive oxygen species production is increased in the peripheral blood monocytes of obese patients. Metab. Clin. Exp. 58: 1087-1095.
3. Civelek, M., et al. 2009. Chronic endoplasmic reticulum stress activates unfolded protein response in arterial endothelium in regions of susceptibility to atherosclerosis. Circ. Res. 105: 453-461.
4. Moraes, J.C., et al. 2009. High-fat diet induces apoptosis of hypothalamic neurons. PLoS ONE 4: e5045.
5. Kim, Y., et al. 2010. Three weeks voluntary running wheel exercise increases endoplasmic reticulum stress in the brain of mice. Brain Res. 1317: 13-23.
6. Huichalaf, C., et al. 2010. Expansion of CUG RNA repeats causes stress and inhibition of translation in myotonic dystrophy 1 (DM1) cells. FASEB J. 24: 3706-3719.
7. Xin, W., et al. 2011. Attenuation of endoplasmic reticulum stress-related myocardial apoptosis by SERCA2α gene delivery in ischemic heart disease. Mol. Med. 17: 201-210.
8. Hodges, E.N., et al. 2013. Translational control by negative-strand RNA viruses: methods for the study of a crucial virus/host interaction. Methods 59: 180-187.
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10. 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.