SANTA CRUZ BIOTECHNOLOGY, INC.

eIF2α (K-17): sc-30882

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.

CHROMOSOMAL LOCATION

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

SOURCE

eIF2α (K-17) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of eIF2α 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-30882 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

RESEARCH USE

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

APPLICATIONS

eIF2α (K-17) is recommended for detection of 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).

eIF2α (K-17) is also recommended for detection of 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.

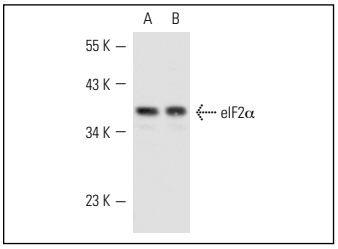
Molecular Weight of eIF2α: 36 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, K-562 whole cell lysate: sc-2203 or NIH/3T3 whole cell lysate: sc-2210.

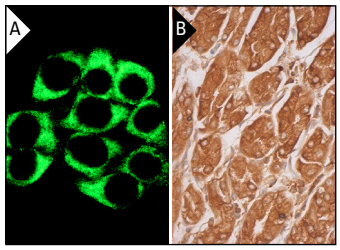
RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 4) Immunohistochemistry: use ImmunoCruz™: sc-2053 or ABC: sc-2023 goat IgG Staining Systems.

DATA



eIF2α (K-17): sc-30882. Western blot analysis of eIF2α expression in HeLa (**A**) and K-562 (**B**) whole cell lysates.



eIF2α (K-17): sc-30882. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human lower stomach tissue showing cytoplasmic staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Suzuki, T., et al. 2007. Reduction of GRP78 expression with siRNA activates unfolded protein response leading to apoptosis in HeLa cells. Arch. Biochem. Biophys. 468: 1-14.
2. Groskreutz, D.J., et al. 2010. Respiratory syncytial virus limits α subunit of eukaryotic translation initiation factor 2 (eIF2α) phosphorylation to maintain translation and viral replication. J. Biol. Chem. 285: 24023-24031.
3. Wang, C.T., et al. 2011. Inhibition of the unfolded protein response by ricin α-chain enhances its cytotoxicity in mammalian cells. Toxins 3: 453-468.
4. Lind, K.R., et al. 2013. The unfolded protein response to endoplasmic reticulum stress in cultured astrocytes and rat brain during experimental diabetes. Neurochem. Int. 62: 784-795.

STORAGE

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