

eIF2 α (G-12): sc-133227



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 eIF2 α , eIF2 β and eIF2 γ (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. eIF2 α , 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 eIF2 α controls the rate of tRNA translation. When eIF2 α is not phosphorylated, translation occurs at a normal rate. However, upon phosphorylation by one of several kinases, eIF2 α 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

eIF2 α (G-12) is a mouse monoclonal antibody raised against amino acids 1-315 representing full length eIF2 α of human origin.

PRODUCT

Each vial contains 200 μ g IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

eIF2 α (G-12) is recommended for detection of eIF2 α of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g 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).

Suitable for use as control antibody for eIF2 α siRNA (h): sc-35272, eIF2 α siRNA (m): sc-35273, eIF2 α shRNA Plasmid (h): sc-35272-SH, eIF2 α shRNA Plasmid (m): sc-35273-SH, eIF2 α shRNA (h) Lentiviral Particles: sc-35272-V and eIF2 α shRNA (m) Lentiviral Particles: sc-35273-V.

Molecular Weight of eIF2 α : 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.

STORAGE

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

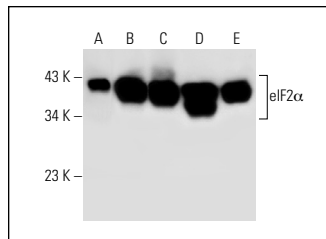
PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

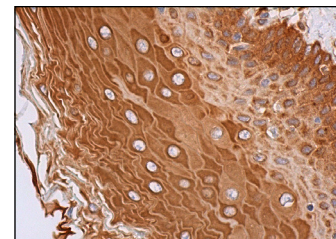
RESEARCH USE

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

DATA



eIF2 α (G-12): sc-133227. Western blot analysis of eIF2 α expression in 293T (A), HeLa (B), K-562 (C), NIH/3T3 (D) and KNRK (E) whole cell lysates.



eIF2 α (G-12): sc-133227. Immunoperoxidase staining of formalin fixed, paraffin-embedded human esophagus tissue showing cytoplasmic staining of squamous epithelial cells.

SELECT PRODUCT CITATIONS

- Cheng, S.L., et al. 2010. Activation of vascular smooth muscle parathyroid hormone receptor inhibits Wnt/ β -catenin signaling and aortic fibrosis in diabetic arteriosclerosis. *Circ. Res.* 107: 271-282.
- Golovko, A., et al. 2016. The eIF2A knockout mouse. *Cell Cycle* 15: 3115-3120.
- McGavigan, A.K., et al. 2017. Vertical sleeve gastrectomy reduces blood pressure and hypothalamic endoplasmic reticulum stress in mice. *Dis. Model. Mech.* 10: 235-243.
- Yuan, S.H., et al. 2018. Tauopathy-associated PERK alleles are functional hypomorphs that increase neuronal vulnerability to ER stress. *Hum. Mol. Genet.* 27: 3951-3963.
- Guo, X., et al. 2019. Hepatitis C virus infection induces endoplasmic reticulum stress and apoptosis in human fetal liver stem cells. *J. Pathol.* 248: 155-163.
- Yang, P., et al. 2020. Loss of CD36 impairs hepatic Insulin signaling by enhancing the interaction of PTP1B with IR. *FASEB J.* 34: 5658-5672.
- Kim, T.J., et al. 2021. Valdecoxib improves lipid-induced skeletal muscle insulin resistance via simultaneous suppression of inflammation and endoplasmic reticulum stress. *Biochem. Pharmacol.* 188: 114557.
- Krokowski, D., et al. 2022. Stress-induced perturbations in intracellular amino acids reprogram mRNA translation in osmoadaptation independently of the ISR. *Cell Rep.* 40: 111092.
- Choi, S.W., et al. 2023. Adipokine gremlin-1 promotes hepatic steatosis via upregulation of ER stress by suppressing autophagy-mediated signaling. *J. Cell. Physiol.* 238: 966-975.



See **eIF2 α (D-3): sc-133132** for eIF2 α antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.