

eIF2 $\alpha$  (D-3): sc-133132

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 $\alpha$ , eIF2 $\beta$  and eIF2 $\gamma$  (eukaryotic translation initiation factor 2  $\alpha$ ,  $\beta$  and  $\gamma$ , respectively), all of which work in concert to form a ternary complex with GTP and tRNA in the early stages of protein synthesis. eIF2 $\alpha$ , 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 $\alpha$  controls the rate of tRNA translation. When eIF2 $\alpha$  is not phosphorylated, translation occurs at a normal rate. However, upon phosphorylation by one of several kinases, eIF2 $\alpha$  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 $\alpha$  (D-3) is a mouse monoclonal antibody raised against acids 1-315 representing full length eIF2 $\alpha$  of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

eIF2 $\alpha$  (D-3) is available conjugated to agarose (sc-133132 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-133132 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-133132 PE), fluorescein (sc-133132 FITC), Alexa Fluor<sup>®</sup> 488 (sc-133132 AF488), Alexa Fluor<sup>®</sup> 546 (sc-133132 AF546), Alexa Fluor<sup>®</sup> 594 (sc-133132 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-133132 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-133132 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-133132 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

## APPLICATIONS

eIF2 $\alpha$  (D-3) is recommended for detection of eIF2 $\alpha$  of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ 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 $\alpha$  siRNA (h): sc-35272, eIF2 $\alpha$  siRNA (m): sc-35273, eIF2 $\alpha$  shRNA Plasmid (h): sc-35272-SH, eIF2 $\alpha$  shRNA Plasmid (m): sc-35273-SH, eIF2 $\alpha$  shRNA (h) Lentiviral Particles: sc-35272-V and eIF2 $\alpha$  shRNA (m) Lentiviral Particles: sc-35273-V.

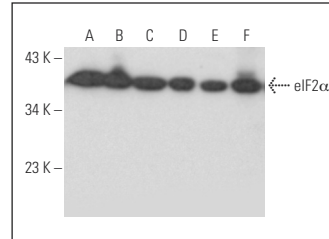
Molecular Weight of eIF2 $\alpha$ : 36 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, Jurkat whole cell lysate: sc-2204 or A-431 whole cell lysate: sc-2201.

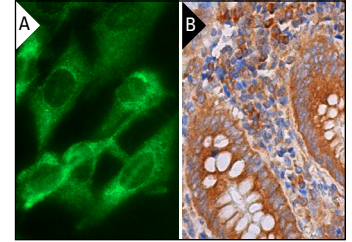
## STORAGE

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

## DATA



eIF2 $\alpha$  (D-3): sc-133132. Western blot analysis of eIF2 $\alpha$  expression in HeLa (A), Jurkat (B), PC-12 (C), A-431 (D) and NIH/3T3 (E) whole cell lysates and mouse placenta tissue extract (F).



eIF2 $\alpha$  (D-3): sc-133132. Immunofluorescence staining of methanol-fixed NIH/3T3 cells showing cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human appendix tissue showing cytoplasmic staining of glandular cells and lymphoid cells (B).

## SELECT PRODUCT CITATIONS

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- Xu, S., et al. 2015. Palmitate induces ER calcium depletion and apoptosis in mouse podocytes subsequent to mitochondrial oxidative stress. *Cell Death Dis.* 6: e1976.
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- Maddalena, F., et al. 2017. TRAP1 protein signature predicts outcome in human metastatic colorectal carcinoma. *Oncotarget* 8: 21229-21240.
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- Hülsmann, J., et al. 2018. AP-SWATH reveals direct involvement of VCP/p97 in integrated stress response signaling through facilitating CREP/PPP1R15B degradation. *Mol. Cell. Proteomics* 17: 1295-1307.

## RESEARCH USE

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

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