

# eIF2 $\beta$ (E-4): sc-166536

## BACKGROUND

The initiation of protein synthesis in eukaryotic cells is regulated by interactions between protein initiation factors and RNA molecules. The eukaryotic initiation complex eIF2B exists as a five subunit complex composed of eIF2B $\alpha$ , eIF2B $\beta$ , eIF2B $\gamma$ , eIF2B $\delta$ , and eIF2B $\epsilon$ . The eIF2B complex catalyzes the exchange of GDP for GTP on the eIF2 complex, following the interaction of eIF2/GTP with the 40S ribosomal subunit. Guanine nucleotide exchange factor (GEF) activity is exhibited by the eIF2B $\epsilon$  subunit alone, but is greater in the presence of all five eIF2B subunits. Phosphorylation of eIF2 inhibits GEF activity of eIF2B, an inhibition that requires the eIF2B $\alpha$  subunit.

## REFERENCES

1. Trachsel, H. and Staehelin, T. 1978. Binding and release of eukaryotic initiation factor eIF2 and GTP during protein synthesis initiation. *Proc. Natl. Acad. Sci. USA* 75: 204-208.
2. Benne, R., Ames, H., Hershey, J.W. and Voorma, H.O. 1979. The activity of eukaryotic initiation factor eIF2 in ternary complex formation with GTP and Met-tRNA. *J. Biol. Chem.* 254: 3201-3205.
3. Ernst, H., Duncan, R.F. and Hershey, J.W. 1987. Cloning and sequencing of complementary DNAs encoding the  $\alpha$ -subunit of translational initiation factor eIF2. Characterization of the protein and its messenger RNA. *J. Biol. Chem.* 262: 1206-1212.
4. Pathak, V.K., Nielsen, P.J., Trachsel, H. and Hershey, J.W. 1988. Structure of the  $\beta$ -subunit of translational initiation factor eIF2. *Cell* 54: 633-639.
5. Kaufman, R.J., Davies, M.V., Pathak, V.K. and Hershey, J.W. 1989. The phosphorylation state of eucaryotic initiation factor 2 alters translational efficiency of specific mRNAs. *Mol. Cell. Biol.* 9: 946-958.
6. Gaspar, N.J., Kinzy, T.G., Scherer, B.J., Humbelin, M., Hershey, J.W. and Merrick, W.C. 1994. Translation initiation factor eIF2. Cloning and expression of the human cDNA encoding the  $\gamma$ -subunit. *J. Biol. Chem.* 269: 3415-3422.

## CHROMOSOMAL LOCATION

Genetic locus: EIF2S2 (human) mapping to 20q11.22; Eif2s2 (mouse) mapping to 2 H1.

## SOURCE

eIF2 $\beta$  (E-4) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 1-30 at the N-terminus of eIF2 $\beta$  of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG $_1$  kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-166536 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

## RESEARCH USE

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

## APPLICATIONS

eIF2 $\beta$  (E-4) is recommended for detection of eIF2 $\beta$  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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for eIF2 $\beta$  siRNA (h): sc-35270, eIF2 $\beta$  siRNA (m): sc-35271, eIF2 $\beta$  shRNA Plasmid (h): sc-35270-SH, eIF2 $\beta$  shRNA Plasmid (m): sc-35271-SH, eIF2 $\beta$  shRNA (h) Lentiviral Particles: sc-35270-V and eIF2 $\beta$  shRNA (m) Lentiviral Particles: sc-35271-V.

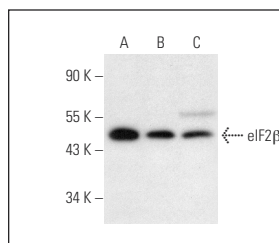
Molecular Weight of eIF2 $\beta$ : 45 kDa.

Positive Controls: KNRK whole cell lysate: sc-2214, K-562 whole cell lysate: sc-2203 or HeLa whole cell lysate: sc-2200.

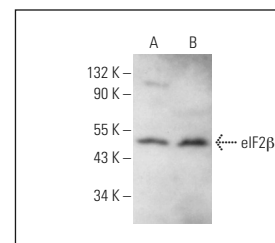
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 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 m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## DATA



eIF2 $\beta$  (E-4): sc-166536. Western blot analysis of eIF2 $\beta$  expression in K-562 (A), HeLa (B) and KNRK (C) whole cell lysates.



eIF2 $\beta$  (E-4): sc-166536. Western blot analysis of eIF2 $\beta$  expression in NIH/3T3 (A) and 3T3-L1 (B) whole cell lysates.

## 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](http://www.scbt.com) for detailed protocols and support products.