Revision 1

Store at -20C

#3595

eIF2B-ε Antibody

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W	H M R Mk	Endogenous	85	Rabbit	#Q13144	8893

Product Usage Information

Application	Dilution
Western Blotting	1:1000

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at –20°C. Do not aliquot the antibody.

Specificity/Sensitivity

eIF2B-epsilon Antibody detects endogenous levels of total eIF2B-epsilon protein.

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to amino acids near the middle of human eIF2B-epsilon. Antibodies are purified by protein A and peptide affinity chromatography.

Background

Phosphorylation of the eukaryotic initiation factor 2 (eIF2) α subunit is a well-documented mechanism to downregulate protein synthesis under a variety of stress conditions. eIF2 binds GTP and Met-tRNAi and transfers Met-tRNA to the 40S subunit to form the 43S preinitiation complex (1,2). eIF2 promotes a new round of translation initiation by exchanging GDP for GTP, a reaction catalyzed by eIF2B (1,2). Kinases that are activated by viral infection (PKR), endoplasmic reticulum stress (PERK/PEK), amino acid deprivation (GCN2), or heme deficiency (HRI) can phosphorylate the α subunit of eIF2 (3,4). This phosphorylation stabilizes the eIF2-GDP-eIF2B complex and inhibits the turnover of eIF2B. Induction of PKR by IFN-γ and TNF-α induces potent phosphorylation of eIF2α at Ser51 (5,6).
eIF2B, a guanine nucleotide exchange factor, is composed of 5 subunits, the largest of which is eIF2B-epsilon (7). Multiple in vivo phosphorylation sites have been identified on eIF2B-epsilon (8). Casein Kinase II can phosphorylate eIF2B-epsilon at Ser717/718 to allow for association with its substrate eIF2. Phosphorylation at Ser544 allows GSK-3 to phosphorylate the key regulatory site Ser540. A fifth eIF2B-epsilon phosphorylation site, Ser466, can be phosphorylated by casein kinase I.

Background References

1. Kimball, S.R. (1999) *Int. J. Biochem. Cell Biol.* 31, 25-29.
2. de Haro, C. et al. (1996) *FASEB J.* 10, 1378-87.
3. Kaufman, R.J. (1999) *Genes Dev.* 13, 1211-33.
4. Sheikh, M.S. and Fornace Jr., A.J. (1999) *Oncogene* 18, 6121-8.
5. Cheshire, J.L. et al. (1999) *J. Biol. Chem.* 274, 4801-6.
6. Zamanian-Daryoush, M. et al. (2000) *Mol. Cell. Biol.* 20, 1278-90.
7. Fabian , J. R. et al. (1997) *J. Biol. Chem.* 272, 12359-12365.
8. Wang, X. et al. (2001) *EMBO J.* 20, 4349-4359.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting

Cross-Reactivity Key

H: Human **M:** Mouse **R:** Rat **Mk:** Monkey

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Limited Uses

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