Store at -20°C

#9721

Phospho-eIF2α (Ser51) Antibody

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not For Use In Diagnostic Procedures.

Entrez-Gene ID #1965
Swiss-Prot Acc. #P05198

Applications	Species Cross-Reactivity*	Molecular Wt.	Source
W Endogenous	H, M, R, Mk	38 kDa	Rabbit**

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. Eukaryotic initiation factor 2 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).

Specificity/Sensitivity: Phospho-eIF2alpha (Ser51) Antibody detects endogenous eIF2alpha only when phosphorylated at Ser51. The antibody does not recognize eIF2alpha phosphorylated at other sites.

Source/Purification: Polyclonal antibodies are produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Ser51 of human eIF2alpha. Antibodies are purified by protein A and peptide affinity chromatography.

Background References:

(1) Kimball, S.R. (1999) *Int. J. Biochem. Cell Biol.* 31, 25-29.

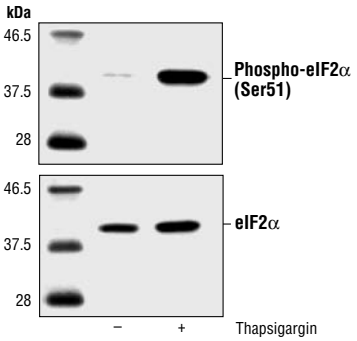
(2) De Haro, C. et al. (1996) *FASEB J.* 10, 1378-1387.

(3) Kaufman, R.J. (1999) *Genes Dev.* 13, 1211-1233.

(4) Sheikh, M.S. and Fornace Jr., A.J. (1999) *Oncogene* 18, 6121-6128.

(5) Cheshire, J.L. et al. (1999) *J. Biol. Chem.* 274, 4801-4806.

(6) Zamanian-Daryoush, M. et al. (2000) *Mol. Cell. Biol.* 20, 1278-1290.



Western blot analysis of extracts from PC12 cells, untreated or thapsigargin-treated (300 nM), using Phospho-eIF2α (Ser51) Antibody (upper) or eIF2α Antibody #9722 (lower).

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.*

***Species cross-reactivity is determined by western blot.**

****Anti-rabbit secondary antibodies must be used to detect this antibody.**

Recommended Antibody Dilutions:

Western blotting	1:1000

For application specific protocols please see the web page for this product at www.cellsignal.com.

Please visit www.cellsignal.com for a complete listing of recommended companion products.

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

Applications Key: **W**—Western **IP**—Immunoprecipitation **IHC**—Immunohistochemistry **ChIP**—Chromatin Immunoprecipitation **IF**—Immunofluorescence **F**—Flow cytometry **E-P**—ELISA-Peptide

Species Cross-Reactivity Key: **H**—human **M**—mouse **R**—rat **Hm**—hamster **Mk**—monkey **Mi**—mink **C**—chicken **Dm**—D. melanogaster **X**—Xenopus **Z**—zebrafish **B**—bovine **Dg**—dog **Pg**—pig **Sc**—S. cerevisiae **Ce**—C. elegans **Hr**—Horse **All**—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.