

Phospho-eIF2 α (Ser51) (119A11) Rabbit mAb

- Small 100 μ l (10 Western mini-blot)
- Large 300 μ l (30 Western mini-blot)

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This product is for *in vitro* research use only and is not intended for use in humans or animals. This product is not intended for use as a therapeutic or in diagnostic procedures.

Applications	Species Cross-Reactivity*	Molecular Wt.	Isotype
W, IP, IHC-P Endogenous	H, M, R, Mk, Dr	38 kDa	Rabbit IgG**

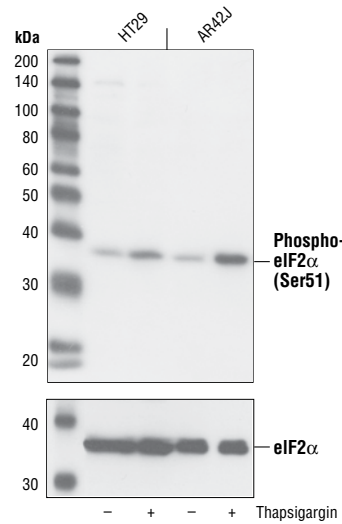
Background: Phosphorylation of the alpha subunit of eukaryotic initiation factor 2 is a well documented mechanism of downregulating protein synthesis under a variety of stress conditions. Eukaryotic initiation factor 2 binds GTP and Met-tRNAi and transfers Met-tRNA to the 40S subunit to form the 43S preinitiation complex (1,2). For eIF2 to promote a new round of translation initiation, GDP must be exchanged for GTP, a reaction catalyzed by eIF2B (1,2). Kinases activated by viral infection (PKR), endoplasmic reticulum stress (PERK/PEK), amino acid deprivation (GCN2) and hemin deficiency (HRI) can phosphorylate the α subunit of eIF2 (3,4). This phosphorylation stabilizes the eIF2-GDP-eIF2B complex, inhibiting the turnover of eIF2B. Induction of PKR by IFN- γ and TNF- α , or stress provoked by depletion of endoplasmic reticulum calcium levels, induces potent phosphorylation of eIF2 α at Ser51 (5,6).

Specificity/Sensitivity: Phospho-eIF2 α (Ser51) RmAb detects endogenous eIF2 α only when phosphorylated at Ser51. The antibody does not recognize eIF2 α phosphorylated at other sites.

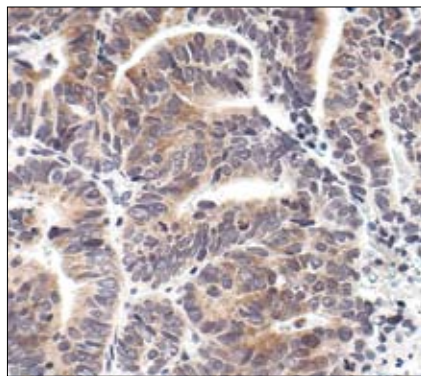
Source/Purification: Rabbit monoclonal antibody is produced by immunizing animals with a synthetic phosphopeptide (KLH-coupled) corresponding to residues surrounding Ser51 of human eIF2 α .

Background References:

- Kimball, S.R. (1999) *Int. J. Biochem. Cell Biol.* 31, 25–29.
- De Haro, C. et al. (1996) *FASEB J.* 10, 1378–1387.
- Kaufman, R.J. (1999) *Genes Dev.* 13, 1211–1233.
- Sheikh, M.S. and Fornace Jr., A.J. (1999) *Oncogene* 18, 6121–6128.
- Cheshire, J.L. et al. (1999) *J. Biol. Chem.* 274, 4801–4806.
- Zamanian-Daryoush, M. et al. (2000) *Mol. Cell. Biol.* 20, 1278–1290.



Western blot analysis of extracts from HT29 (human) and AR42J (mouse) cells, untreated or thapsigargin-treated (300 nM, 30 min), using Phospho-eIF2 α (Ser51) (119A11) Rabbit mAb (upper) or eIF2 α Antibody #9722 (lower).



Immunohistochemical analysis of paraffin-embedded human lung carcinoma using Phospho-eIF2 α (Ser51) (119A11) Rabbit mAb.

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

Storage: Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 μ g/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
Immunoprecipitation	1:50
Immunohistochemistry (Paraffin)	1:50

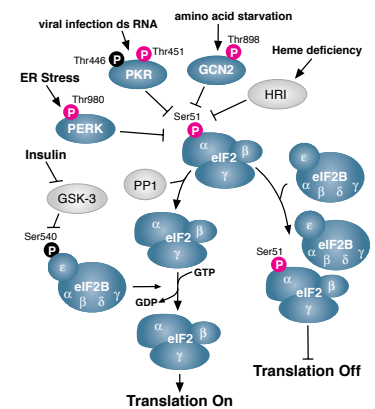
IHC protocol: Unmasking buffer/Antibody diluent Citrate/TBST-5%NGS

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

Companion Products:

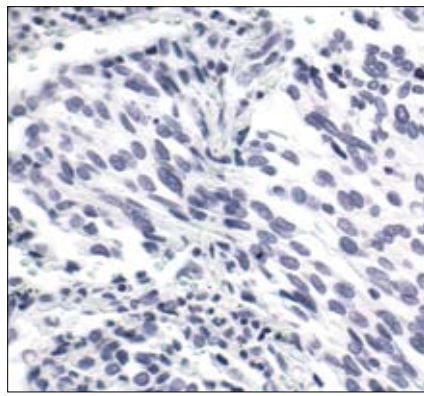
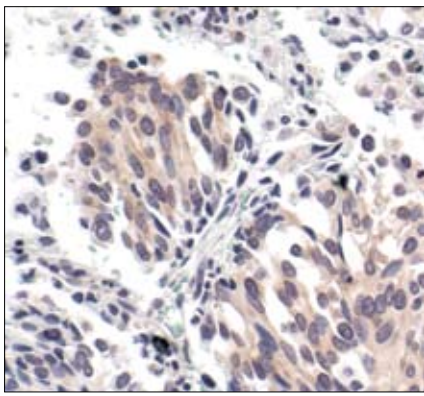
- eIF2B-e Antibody #3595
- Phospho-PKR (Thr451) Antibody #3075
- Phospho-PERK (Thr980) Antibody #3191
- GCN2 Antibody #3302
- SignalStain® Antibody Diluent #8112
- Phototope®-HRP Western Blot Detection System, Anti-rabbit IgG, HRP-linked Antibody #7071
- Anti-rabbit IgG, HRP-linked Antibody #7074
- Prestained Protein Marker, Broad Range (Premixed Format) #7720
- Biotinylated Protein Ladder Detection Pack #7727
- 20X LumiGLO® Reagent and 20X Peroxide #7003

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

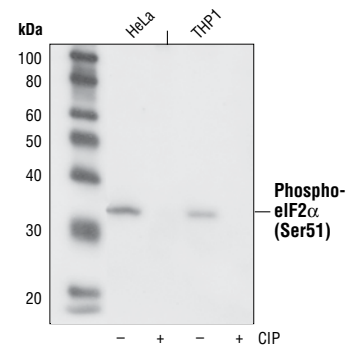


IMPORTANT: For Western blots, incubate membrane with diluted antibody in 5% w/v BSA, 1X TBS, 0.1% Tween-20 at 4°C with gentle shaking, overnight.

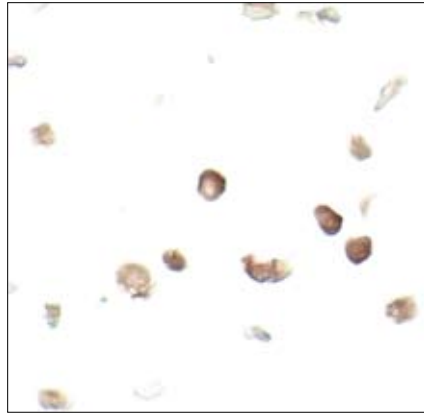
Applications Key: W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide
Species Cross-Reactivity Key: H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebra fish B—bovine
Dg—dog Pg—pig Sc—S. cerevisiae All—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.



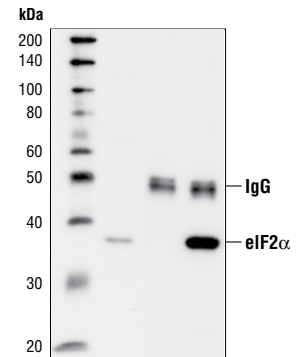
Immunohistochemical analysis of paraffin-embedded human lung carcinoma, using Phospho-eIF2 α (Ser51) (119A11) Rabbit mAb in the presence of control peptide (left) or Phospho-eIF2 α (Ser51) Blocking Peptide (#1221) (right).



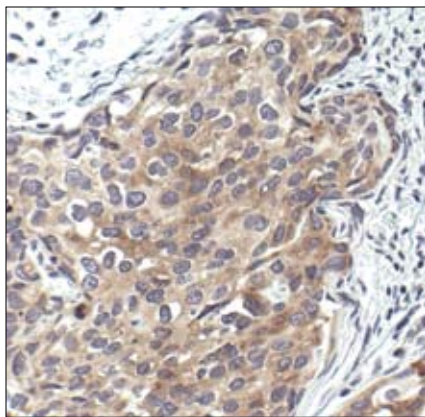
Western blot analysis of extracts from HeLa and THP-1 cells untreated or phosphatase treated, using Phospho-eIF2 α (Ser51) (119A11) Rabbit mAb.



Immunohistochemical analysis of paraffin-embedded PC-3 cells untreated (left) or thapsigargin-treated (right), using Phospho-eIF2 α (Ser51) (119A11) Rabbit mAb.



Western blot analysis of immunoprecipitates from PC12 cells, using Phospho-eIF2 α (Ser51) (119A11) Rabbit mAb. Lane 1 is lysate control, lane 2 is the antibody alone as negative control and lane 3 is antibody immunocomplex of PC12 cells.



Immunohistochemical analysis of paraffin-embedded human breast carcinoma, showing cytoplasmic localization, using Phospho-eIF2 α (Ser51) (119A11) Rabbit mAb.