

p-eEF2K (Ser 78): sc-33051

BACKGROUND

The activity of the purified eukaryotic elongation-factor-2 kinase (eEF2K) is completely dependent on calcium and calmodulin, and autophosphorylation on serine and threonine residues is calcium/calmodulin-dependent. eEF2K is a ubiquitous protein kinase that phosphorylates and inactivates eEF2, and thus can modulate the rate of polypeptide chain elongation during translation. eEF2K is detected in skeletal muscle extracts and is phosphorylated rapidly by SAPK4, but poorly by p38, p38 γ , JNK or ERK 2. SAPK4 phosphorylates eEF2K at Ser 359 and Ser 396 *in vitro*, causing its inactivation. The phosphorylation of eEF2K at Ser 359 is also induced by Insulin-like growth factor-1. Ser 359 is in close proximity to Ser 366 and the Ser 366 residue also becomes phosphorylated in response to growth factors. eEF2K is phosphorylated by p70 S6 kinase at Ser 366 and this results in the inactivation of eEF2K, especially at low (micromolar) calcium concentrations.

REFERENCES

1. Redpath, N.T. and Proud, C.G. 1993. Purification and phosphorylation of elongation-factor-2 kinase from rabbit reticulocytes. *Eur. J. Biochem.* 212: 511-520.
2. Pavur, K.S., Petrov, A.N. and Ryazanov, A.G. 2000. Mapping the functional domains of elongation-factor-2 kinase. *Biochemistry* 39: 12216-12224.
3. Knebel, A., Morrice, N. and Cohen, P. 2001. A novel method to identify protein kinase substrates: eEF2 kinase is phosphorylated and inhibited by SAPK4/p38 δ . *EMBO J.* 20: 4360-4369.
4. Wang, X., Li, W., Williams, M., Terada, N., Alessi, D.R. and Proud, C.G. 2001. Regulation of elongation-factor-2 kinase by p90(Rsk-1) and p70 S6 kinase. *EMBO J.* 20: 4370-4379.
5. Proud, C.G., Wang, X., Patel, J.V., Campbell, L.E., Kleijn, M., Li, W. and Browne, G.J. 2001. Interplay between Insulin and nutrients in the regulation of translation factors. *Biochem. Soc. Trans.* 29: 541-547.

CHROMOSOMAL LOCATION

Genetic locus: EEF2K (human) mapping to 16p12.2.

SOURCE

p-eEF2K (Ser 78) is a rabbit polyclonal antibody raised against a short amino acid sequence containing Ser 78 phosphorylated eEF2K of human origin.

PRODUCT

Each vial contains 200 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-33051 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

p-eEF2K (Ser 78) is recommended for detection of Ser 78 phosphorylated eEF2K of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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 eEF2K siRNA (h): sc-39011, eEF2K shRNA Plasmid (h): sc-39011-SH and eEF2K shRNA (h) Lentiviral Particles: sc-39011-V.

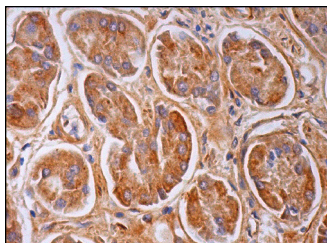
Molecular Weight of p-eEF2K: 105 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Western Blotting Luminol Reagent: sc-2048 and Lambda Phosphatase: sc-200312A. 2) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 3) Immunohistochemistry: use ImmunoCruz™: sc-2051 or ABC: sc-2018 rabbit IgG Staining Systems.

DATA



p-eEF2K (Ser 78): sc-33051. Immunoperoxidase staining of formalin fixed, paraffin-embedded human upper stomach tissue showing cytoplasmic staining of glandular cells and interstitial cells.

SELECT PRODUCT CITATIONS

1. Huber-Keener, K.J., Evans, B.R., Ren, X., Cheng, Y., Zhang, Y., Hait, W.N. and Yang, J.M. 2012. Phosphorylation of elongation factor-2 kinase differentially regulates the enzyme's stability under stress conditions. *Biochem. Biophys. Res. Commun.* 424: 308-314.

RESEARCH USE

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