SANTA CRUZ BIOTECHNOLOGY, INC.

eEF2K (B-4): sc-393366

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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, p38γ, 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/p38δ. 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 $p90^{RSK1}$ 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; Eef2k (mouse) mapping to 7 F2.

SOURCE

eEF2K (B-4) is a mouse monoclonal antibody raised against amino acids 426-725 mapping at the C-terminus of eEF2K of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

RESEARCH USE

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

APPLICATIONS

eEF2K (B-4) is recommended for detection of eEF2K of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg 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 eEF2K siRNA (h): sc-39011, eEF2K siRNA (m): sc-39012, eEF2K shRNA Plasmid (h): sc-39011-SH, eEF2K shRNA Plasmid (m): sc-39012-SH, eEF2K shRNA (h) Lentiviral Particles: sc-39011-V and eEF2K shRNA (m) Lentiviral Particles: sc-39012-V.

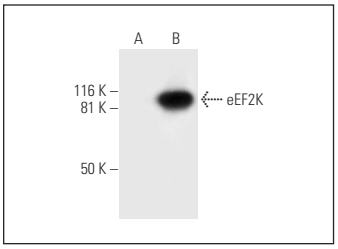
Molecular Weight of eEF2K: 105 kDa.

Positive Controls: eEF2K (h): 293T Lysate: sc-115200, A-431 whole cell lysate: sc-2201 or F9 cell lysate: sc-2245.

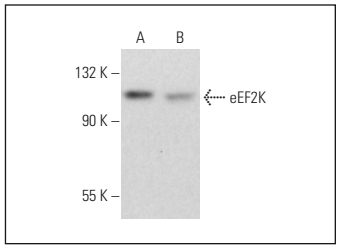
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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



eEF2K (B-4): sc-393366. Western blot analysis of eEF2K expression in non-transfected: sc-117752 (**A**) and human eEF2K transfected: sc-115200 (**B**) 293T whole cell lysates.



eEF2K (B-4): sc-393366. Western blot analysis of eEF2K expression in A-431 (**A**) and F9 (**B**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Xiao, M., Xie, J., Wu, Y., Wang, G., Qi, X., Liu, Z., Wang, Y., Wang, X., Hoque, A., Oakhill, J., Proud, C.G. and Li, J. 2020. The eEF2 kinase-induced STAT3 inactivation inhibits lung cancer cell proliferation by phosphorylation of PKM2. Cell Commun. Signal. 18: 25.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.