SANTA CRUZ BIOTECHNOLOGY, INC.

p-MAPKAPK-2 (Thr 334): sc-101729

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The Power to Question

BACKGROUND

The p38 mitogen-activated protein kinase (MAPK) pathway is an important mediator of cellular responses to environmental stress. The MAPKAP kinases (MAP kinase activated protein kinases) are a group of MAP kinase substrates that are themselves kinases. In response to activation, the MAP kinases phosphorylate downstream components on a consensus Pro-X-Ser/Thr-Pro motif. p38 phosphorylates and activates the serine/threonine kinases MAPKAP kinase-2 and MAPKAP kinase-3 (also designated 3pK). The activated MAPKAPK-2 phosphorylates its nuclear targets CREB/ATF1, serum response factor, and E2A protein E47 and its cytoplasmic targets HSP25/27, LSP-1, 5-lipoxygenase, glycogen synthase and tyrosine hydroxylase. Phosphorylation of Threonine 334, which is located between the kinase domain and the C-terminal regulatory domain, may serve as a switch for MAPKAPK-2 nuclear import and export. Threonine 222 which lies in the activation loop is also phosphorylated. Phosphorylated MAPKAPK-2 masks the nuclear localization signal at its C-terminus by binding to p38, and unmasks the nuclear export signal, carrying p38 to the cytoplasm.

REFERENCES

1. Sturgill, T.W., et al. 1988. Insulin-stimulated MAP2 kinase phosphorylates and activates ribosomal protein S6 kinase II. Nature 334: 715-718.
2. Stokoe D., et al. 1992. MAPKAP kinase-2; a novel protein kinase activated by mitogen-activated protein kinase. EMBO J. 11: 3985-3994.
3. Davis, R.J. 1993. The mitogen-activated protein kinase signal transduction pathway. J. Biol. Chem. 268: 14553-14556.
4. Zhao, Y., et al. 1995. RSK3 encodes a novel pp90rsk isoform with a unique N-terminal sequence: growth factor stimulated kinase function and nuclear translocation. Mol. Cell. Biol. 15: 4353-4363.
5. Meng W., et al. 2002. Structure of mitogen-activated protein kinase-activated protein (MAPKAP) kinase 2 suggests a bifunctional switch that couples kinase activation with nuclear export. J. Biol. Chem. 277: 37401-37405.

CHROMOSOMAL LOCATION

Genetic locus: MAPKAPK2 (human) mapping to 1q32.1; Mapkapk2 (mouse) mapping to 1 E4.

SOURCE

p-MAPKAPK-2 (Thr 334) is a rabbit polyclonal antibody raised against a short amino acid sequence containing Thr 334 phosphorylated MAPKAPK-2 of human origin.

PRODUCT

Each vial contains 100 µg IgG 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.

APPLICATIONS

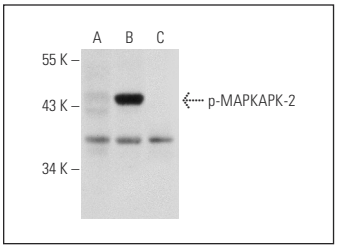
p-MAPKAPK-2 (Thr 334) is recommended for detection of Thr 334 phosphorylated MAPKAPK-2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for MAPKAPK-2 siRNA (h): sc-35855, MAPKAPK-2 siRNA (m): sc-35856, MAPKAPK-2 shRNA Plasmid (h): sc-35855-SH, MAPKAPK-2 shRNA Plasmid (m): sc-35856-SH, MAPKAPK-2 shRNA (h) Lentiviral Particles: sc-35855-V and MAPKAPK-2 shRNA (m) Lentiviral Particles: sc-35856-V.

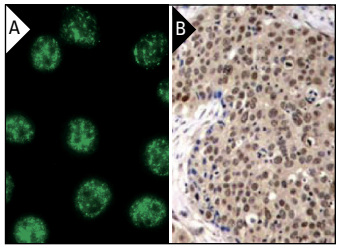
Molecular Weight of p-MAPKAPK-2: 47 kDa.

Positive Controls: HeLa + UV irradiated cell lysate: sc-2221 or HeLa whole cell lysate: sc-2200.

DATA



p-MAPKAPK-2 (Thr 334): sc-101729. Western blot analysis of MAPKAPK-2 phosphorylation in untreated (**A**), UV irradiated (**B**) and UV irradiated and lambda protein phosphatase treated (**C**) HeLa whole cell lysates.



p-MAPKAPK-2 (Thr 334): sc-101729. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization (**A**) and immunoperoxidase staining of formalin-fixed, paraffin-embedded human breast carcinoma tissue showing nuclear and cytoplasmic localization (**B**).

SELECT PRODUCT CITATIONS

1. Lee, W.H., et al. 2011. Casein kinase 2 regulates the mRNA-destabilizing activity of tristetraprolin. J. Biol. Chem. 286: 21577-21587.

RESEARCH USE

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

PROTOCOLS

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

MONOS Satisfaction Guaranteed

Try **p-MAPKAPK-2 (89.Thr 334): sc-293140** or **p-MAPKAPK-2 (83.Thr 334): sc-293139**, our highly recommended monoclonal aternatives to p-MAPKAPK-2 (Thr 334).