SANTA CRUZ BIOTECHNOLOGY, INC.

p-MAPKAPK-2 (83.Thr 334): sc-293139

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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 MAPKAPK2 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 MAPKAPK2 nuclear import and export. Threonine 222 which lies in the activation loop is also phosphorylated. Phosphorylated MAPKAPK2 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 pp90^{rsk} 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.
6. Seternes, O.M., et al. 2002. Both binding and activation of p38 mitogen-activated protein kinase (MAPK) play essential roles in regulation of the nucleocytoplasmic distribution of MAPK-activated protein kinase 5 by cellular stress. Mol. Cell. Biol. 22: 6931-6945.

CHROMOSOMAL LOCATION

Genetic locus: MAPKAPK2 (human) mapping to 1q32.1.

SOURCE

p-MAPKAPK-2 (83.Thr 334) is a mouse monoclonal antibody raised against a short amino acid sequence containing Thr 334 phosphorylated MAPKAPK-2 of human origin.

STORAGE

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

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

p-MAPKAPK-2 (83.Thr 334) is available conjugated to agarose (sc-293139 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-293139 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-293139 PE), fluorescein (sc-293139 FITC), Alexa Fluor® 488 (sc-293139 AF488), Alexa Fluor® 546 (sc-293139 AF546), Alexa Fluor® 594 (sc-293139 AF594) or Alexa Fluor® 647 (sc-293139 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-293139 AF680) or Alexa Fluor® 790 (sc-293139 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

p-MAPKAPK-2 (83.Thr 334) is recommended for detection of Thr 334 phosphorylated MAPKAPK-2 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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

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

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

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.

SELECT PRODUCT CITATIONS

1. Hornick, E.E., et al. 2018. Nlrp12 mediates adverse neutrophil recruitment during influenza virus infection. J. Immunol. 200: 1188-1197.
2. Dannenmann, B., et al. 2021. iPSC modeling of stage-specific leukemogenesis reveals BAALC as a key oncogene in severe congenital neutropenia. Cell Stem Cell 28: 906-922.e6.

RESEARCH USE

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

PROTOCOLS

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