

p-MAPKAPK-2 (89.Thr 334): sc-293140

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 unmasking 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.
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 (89.Thr 334) is a mouse monoclonal antibody raised against a short amino acid sequence containing phosphorylated Thr 334 of 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 IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

p-MAPKAPK-2 (89.Thr 334) is available conjugated to agarose (sc-293140 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-293140 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-293140 PE), fluorescein (sc-293140 FITC), Alexa Fluor® 488 (sc-293140 AF488), Alexa Fluor® 594 (sc-293140 AF594) or Alexa Fluor® 647 (sc-293140 AF647), 200 µg/ml, for IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-293140 AF680) or Alexa Fluor® 790 (sc-293140 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

APPLICATIONS

p-MAPKAPK-2 (89.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, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Lambda Phosphatase: sc-200312A and Western Blotting Luminol Reagent: sc-2048.

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.