

p-MEK-5 (Ser 142): sc-130203

BACKGROUND

A family of protein kinases located upstream of the MAP kinases and responsible for their activation has been identified. The prototype member of this family, designated MAP kinase kinase, or MEK-1, specifically phosphorylates the MAP kinase regulatory threonine and tyrosine residues present in the Thr-Glu-Tyr motif of ERK. A second MEK family member, MEK-2, resembles MEK-1 in its substrate specificity. MEK-3 (or MKK-3) functions to activate p38 MAP kinase, and MEK-4 (also called SEK1 or MKK-4) activates both p38 and JNK MAP kinases. MEK-5 appears to specifically phosphorylate ERK5, whereas MEK-6 phosphorylates p38 and p38b. MEK-7 (or MKK-7) phosphorylates and activates the JNK signal transduction pathway. Phosphorylation of MEK-5 on specific serine or threonine residues, such as Ser 142, activates MEK-5 function.

REFERENCES

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- Wu, J., et al. 1993. Identification and characterization of a new mammalian mitogen-activated protein kinase kinase, MKK-2. *Mol. Cell. Biol.* 13: 4539-4548.
- Derijard, B., et al. 1995. Independent human MAP-kinase signal transduction pathways defined by MEK and MKK isoforms. *Science* 267: 682-685.
- Zhou, G., et al. 1995. Components of a new human protein kinase signal transduction pathway. *J. Biol. Chem.* 270: 12665-12669.
- Han, J., et al. 1996. Characterization of the structure and function of a novel MAP kinase kinase (MKK-6). *J. Biol. Chem.* 271: 2886-2891.
- Jiang, Y., et al. 1996. Characterization of the structure and function of a new mitogen-activated protein kinase (p38b). *J. Biol. Chem.* 271: 17920-17926.
- Raviv, Z., et al. 2004. MEK5 and ERK5 are localized in the nuclei of resting as well as stimulated cells, while MEK2 translocates from the cytosol to the nucleus upon stimulation. *J. Cell Sci.* 117: 1773-1784.
- Song, H., et al. 2004. Stat3 upregulates MEK5 expression in human breast cancer cells. *Oncogene* 23: 8301-8309.
- McCracken, S.R., et al. 2008. Aberrant expression of extracellular signal-regulated kinase 5 in human prostate cancer. *Oncogene* 27: 2978-2988.

CHROMOSOMAL LOCATION

Genetic locus: MAP2K5 (human) mapping to 15q23.

SOURCE

p-MEK-5 (Ser 142) is a rabbit polyclonal antibody raised against a short amino acid sequence containing Ser 142 phosphorylated MEK-5 of human origin.

PRODUCT

Each vial contains 100 µg IgG in 1.0 ml PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

p-MEK-5 (Ser 142) is recommended for detection of Ser 142 phosphorylated MEK-5 of 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)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for MEK-5 siRNA (h): sc-35911, MEK-5 shRNA Plasmid (h): sc-35911-SH and MEK-5 shRNA (h) Lentiviral Particles: sc-35911-V.

Molecular Weight of p-MEK-5: 54 kDa.

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

SELECT PRODUCT CITATIONS

- Nakamura, K., et al. 2010. Activity assays for extracellular signal-regulated kinase 5. *Methods Mol. Biol.* 661: 91-106.
- Tang, C.H., et al. 2011. IL-6 increases MMP-13 expression and motility in human chondrosarcoma cells. *J. Biol. Chem.* 286: 11056-11066.

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.

PROTOCOLS

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