

p-MEK-5 (Ser 311/Thr 315): sc-135702

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. MEK-5 is activated by phosphorylation on serine and threonine residues by MLKs. Mouse, rat and human MEK-5 are subject to phosphorylation on Ser 311 and Thr 315.

REFERENCES

1. Crews, C.M., et al. 1992. The primary structure of MEK, a protein kinase that phosphorylates the ERK gene product. *Science* 258: 478-480.
2. 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.
3. Derijard, B., et al. 1995. Independent human MAP-kinase signal transduction pathways defined by MEK and MKK isoforms. *Science* 267: 682-685.
4. Zhou, G., et al. 1995. Components of a new human protein kinase signal transduction pathway. *J. Biol. Chem.* 270: 12665-12669.
5. 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.
6. 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.
7. 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.
8. Song, H., et al. 2004. Stat3 upregulates MEK5 expression in human breast cancer cells. *Oncogene* 23: 8301-8309.
9. 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; Map2k5 (mouse) mapping to 9 C.

SOURCE

p-MEK-5 (Ser 311/Thr 315) is a rabbit polyclonal antibody raised against a short amino acid sequence containing Ser 311 and Thr 315 dually phosphorylated MEK-5 of rat origin.

PRODUCT

Each vial contains IgG in 100 μ l of 10 mM HEPES with 150 mM NaCl, 50% glycerol and < 0.1% BSA.

APPLICATIONS

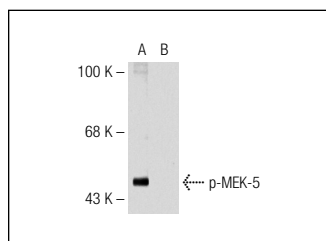
p-MEK-5 (Ser 311/Thr 315) is recommended for detection of Ser 311 and Thr 315 dually phosphorylated MEK-5 of mouse, rat, human, bovine and canine and *Xenopus laevis* origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:100-1:5000) and immunoprecipitation [1-2 μ l per 100-500 μ g of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for MEK-5 siRNA (h): sc-35911, MEK-5 siRNA (m): sc-35912, MEK-5 shRNA Plasmid (h): sc-35911-SH, MEK-5 shRNA Plasmid (m): sc-35912-SH, MEK-5 shRNA (h) Lentiviral Particles: sc-35911-V and MEK-5 shRNA (m) Lentiviral Particles: sc-35912-V.

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

Positive Controls: rat testis extract: sc-2400.

DATA



p-MEK-5 (Ser 311/Thr 315): sc-135702. Western blot analysis of MEK-5 phosphorylation in rat testis tissue extract. Blots were probed with p-MEK-5 (Ser 311/Thr 315): sc-135702 (A) and p-MEK-5 (Ser 311/Thr 315): sc-135702 preincubated with its cognate phosphorylated peptide (B).

SELECT PRODUCT CITATIONS

1. Nakamura, K. and Johnson, G.L. 2010. Activity assays for extracellular signal-regulated kinase 5. *Methods Mol. Biol.* 661: 91-106.
2. Jiang, H., et al. 2014. Restoration of MiR-17/20a in solid tumor cells enhances the natural killer cell anti-tumor activity by targeting Mekk2. *Cancer Immunol. Res.* E-published.

STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

RESEARCH USE

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