

MEK kinase-4 (E-5): sc-166196

BACKGROUND

Mitogen-activated protein (MAP) kinase cascades are activated by various extracellular stimuli including growth factors. The MEK kinases (also designated MAP kinase kinase kinases, MKKKs, MAP3Ks or MEKKs) phosphorylate and thereby activate the MEKs (also called MAP kinase kinases or MKKs), including ERK, JNK and p38. These activated MEKs in turn phosphorylate and activate the MAP kinases. The MEK kinases include Raf-1, Raf-B, Mos, MEK kinase-1, MEK kinase-2, MEK kinase-3, MEK kinase-4, ASK 1 (MEK kinase-5) and MAP3K6 (MEK kinase-6). MEK kinase-1 has been shown to phosphorylate MEK-1 via a Raf-independent pathway. Evidence suggests that MEK-3 is preferentially activated by MEK kinase-3 and that MEK-4 is activated by both MEK kinase-2 and MEK kinase-3. MEK kinase-4 has been shown to specifically activate the JNK pathway. ASK 1 activates both MEK-4 and MEK-3/MEK-6 pathways.

REFERENCES

1. Lange-Carter, C.A., et al. 1993. A divergence in the MAP kinase regulatory network defined by MEK kinase and Raf. *Science* 260: 315-319.
2. Guan, K.L. 1994. The mitogen activated protein kinase signal transduction pathway: from the cell surface to the nucleus. *Cell. Signal.* 6: 581-589.
3. Wang, X.S., et al. 1996. Molecular cloning and characterization of a novel protein kinase with a catalytic domain homologous to mitogen-activated protein kinase kinase kinase. *J. Biol. Chem.* 271: 31607-31611.
4. Gerwins, P., et al. 1997. Cloning of a novel mitogen-activated protein kinase kinase kinase, MEKK4, that selectively regulates the c-Jun amino terminal kinase pathway. *J. Biol. Chem.* 272: 8288-8295.
5. Deacon, K. and Blank, J.L. 1997. Characterization of the mitogen-activated protein kinase kinase 4 (MKK4)/c-Jun NH₂-terminal kinase 1 and MKK3/p38 pathways regulated by MEK kinases 2 and 3. MEK kinase 3 activates MKK3 but does not cause activation of p38 kinase *in vivo*. *J. Biol. Chem.* 272: 14489-14496.
6. Fanger, G.R., et al. 1997. MEK kinases are regulated by EGF and selectively interact with Rac/Cdc42. *EMBO J.* 16: 4961-4972.

CHROMOSOMAL LOCATION

Genetic locus: MAP3K4 (human) mapping to 6q26; Map3k4 (mouse) mapping to 17 A1.

SOURCE

MEK kinase-4 (E-5) is a mouse monoclonal antibody raised against amino acids 1531-1607 mapping at the C-terminus of MEK kinase-4 of human origin.

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.

STORAGE

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

APPLICATIONS

MEK kinase-4 (E-5) is recommended for detection of MEK kinase-4 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for MEK kinase-4 siRNA (h): sc-35902, MEK kinase-4 siRNA (m): sc-35903, MEK kinase-4 shRNA Plasmid (h): sc-35902-SH, MEK kinase-4 shRNA Plasmid (m): sc-35903-SH, MEK kinase-4 shRNA (h) Lentiviral Particles: sc-35902-V, MEK kinase-4 shRNA (m) Lentiviral Particles: sc-35903-V.

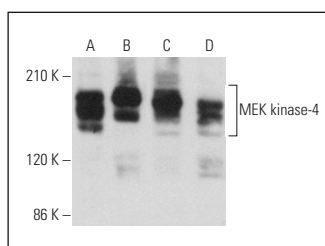
Molecular Weight of MEK kinase-4: 180 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210, K-562 whole cell lysate: sc-2203 or Jurkat whole cell lysate: sc-2204.

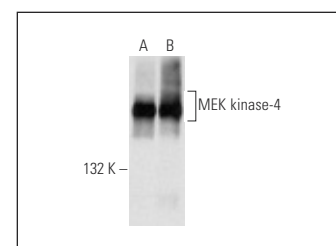
RECOMMENDED SUPPORT REAGENTS

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. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



MEK kinase-4 (E-5): sc-166196. Western blot analysis of MEK kinase-4 expression in NIH/3T3 (A), K-562 (B), RAW 264.7 (C) and PC-12 (D) whole cell lysates.



MEK kinase-4 (E-5): sc-166196. Western blot analysis of MEK kinase-4 expression in Jurkat (A) and K-562 (B) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Hernandez, E.D., et al. 2014. A macrophage NBR1-MEKK3 complex triggers JNK-mediated adipose tissue inflammation in obesity. *Cell Metab.* 20: 499-511.
2. Barata, A.G. and Dick, T.P. 2019. A role for peroxiredoxins in H₂O₂- and MEKK-dependent activation of the p38 signaling pathway. *Redox Biol.* 28: 101340.

RESEARCH USE

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