

# MEK kinase-3 (D-17): sc-6844

## 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. ASK1 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. Fanger, G.R., et al. 1997. MEK kinases are regulated by EGF and selectively interact with Rac/Cdc42. *EMBO J.* 16: 4961-4972.
5. 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.
6. Deacon, K., et al. 1997. Characterization of the mitogen-activated protein kinase kinase 4 (MKK4)/c-Jun NH<sub>2</sub>-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.

## CHROMOSOMAL LOCATION

Genetic locus: MAP3K3 (human) mapping to 17q23.3; Map3k3 (mouse) mapping to 11 E1.

## SOURCE

MEK kinase-3 (D-17) is an affinity purified goat polyclonal antibody raised against a peptide mapping to the N-terminus of MEK kinase-3 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.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-6844 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

MEK kinase-3 (D-17) is recommended for detection of MEK kinase-3 of human and, to a lesser extent, mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

MEK kinase-3 (D-17) is also recommended for detection of MEK kinase-3 in additional species, including canine, bovine and porcine.

Suitable for use as control antibody for MEK kinase-3 siRNA (h): sc-39108, MEK kinase-3 siRNA (m): sc-156010, MEK kinase-3 shRNA Plasmid (h): sc-39108-SH, MEK kinase-3 shRNA Plasmid (m): sc-156010-SH, MEK kinase-3 shRNA (h) Lentiviral Particles: sc-39108-V and MEK kinase-3 shRNA (m) Lentiviral Particles: sc-156010-V.

Molecular Weight of MEK kinase-3: 71 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## SELECT PRODUCT CITATIONS

1. Gilmore, P.M., et al. 2004. BRCA1 interacts with and is required for paclitaxel-induced activation of mitogen-activated protein kinase kinase kinase 3. *Cancer Res.* 64: 4148-4154.
2. Ear, T., et al. 2010. Constitutive association of TGF-β-activated kinase 1 with the IκB kinase complex in the nucleus and cytoplasm of human neutrophils and its impact on downstream processes. *J. Immunol.* 184: 3897-3906.
3. Nakamura, K. and Johnson, G.L. 2010. Activity assays for extracellular signal-regulated kinase 5. *Methods Mol. Biol.* 661: 91-106.

## RESEARCH USE

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