

# MEK kinase-1 (F-11): sc-17820

## 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 and ASK 1 (MEK kinase-5). MEK kinase-1 activates the ERK and c-Jun NH<sub>2</sub>-terminal kinase (JNK) pathways by phosphorylation of MAP2K1 and MAP2K4, and also activates the central protein kinases of the NF- $\kappa$ B pathway, CHUK and IKKB. Additionally, MEK kinase-1 uses an E3 ligase through its PHD domain, a RING-finger-like structure, to target proteins for degradation through ubiquitination.

## 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.

## CHROMOSOMAL LOCATION

Genetic locus: MAP3K1 (human) mapping to 5q11.2; Map3k1 (mouse) mapping to 13 D2.2.

## SOURCE

MEK kinase-1 (F-11) is a mouse monoclonal antibody corresponding to a 300 amino acid internal region of MEK kinase-1 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

MEK kinase-1 (F-11) is available conjugated to agarose (sc-17820 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-17820 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-17820 PE), fluorescein (sc-17820 FITC), Alexa Fluor<sup>®</sup> 488 (sc-17820 AF488), Alexa Fluor<sup>®</sup> 546 (sc-17820 AF546), Alexa Fluor<sup>®</sup> 594 (sc-17820 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-17820 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-17820 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-17820 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor<sup>®</sup> is a trademark of Molecular Probes, Inc., Oregon, USA

## 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-1 (F-11) is recommended for detection of MEK kinase-1 of mouse, rat and human origin by Western Blotting (starting dilution 1;100, dilution range 1:100-1:500), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (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-1 (F-11) is also recommended for detection of MEK kinase-1 in additional species, including canine.

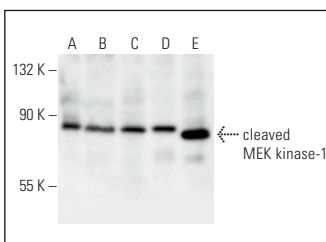
Suitable for use as control antibody for MEK kinase-1 siRNA (h): sc-35898, MEK kinase-1 siRNA (m): sc-35899, MEK kinase-1 shRNA Plasmid (h): sc-35898-SH, MEK kinase-1 shRNA Plasmid (m): sc-35899-SH, MEK kinase-1 shRNA (h) Lentiviral Particles: sc-35898-V and MEK kinase-1 shRNA (m) Lentiviral Particles: sc-35899-V.

Molecular Weight of full length MEK kinase-1: 195 kDa.

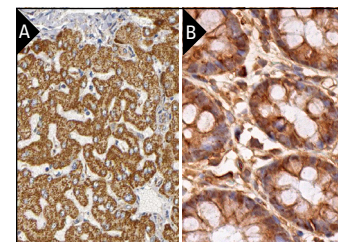
Molecular Weight of cleaved MEK kinase-1: 80 kDa.

Positive Controls: A-431 whole cell lysate: sc-2201, HeLa whole cell lysate: sc-2200 or HL-60 whole cell lysate: sc-2209.

## DATA



MEK kinase-1 (F-11): sc-17820. Western blot analysis of cleaved MEK kinase-1 expression in A-431 (A), HeLa (B), HL-60 (C), A-10 (D) and MDCK (E) whole cell lysates.



MEK kinase-1 (F-11): sc-17820. Immunoperoxidase staining of formalin fixed, paraffin-embedded human liver tissue showing cytoplasmic staining of hepatocytes and bile duct cells. Kindly provided by The Swedish Human Protein Atlas (HPA) program (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded and human colon tissue showing cytoplasmic staining of glandular cells (B).

## SELECT PRODUCT CITATIONS

1. Cai, X., et al. 2011. Luteolin induced G<sub>2</sub> phase cell cycle arrest and apoptosis on non-small cell lung cancer cells. *Toxicol. In Vitro* 25: 1385-1391.
2. Llauro Fernandez, M., et al. 2022. NOTCH signaling limits the response of low grade serous ovarian cancers to MEK inhibition. *Mol. Cancer Ther.* 21: 1862-1874.
3. Wen, C., et al. 2024. Mitochondria-targeted catalase induced cell malignant transformation by the downregulation of p53 protein stability via USP28/miR-200b/PP2A-C $\alpha$  axis. *Arch. Biochem. Biophys.* 758: 110047.

## RESEARCH USE

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