SANTA CRUZ BIOTECHNOLOGY, INC.

p-MEK-1/2 (7E10): sc-81503

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 p38β. MEK-7 (or MKK-7) phosphorylates and activates the JNK signal transduction pathway. Phosphorylation on Ser/Thr by MAP kinase kinase kinases (RAFor MEKK1) positively regulates the kinase activity.

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. Dérijard, 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.

CHROMOSOMAL LOCATION

Genetic locus: MAP2K1 (human) mapping to 15q22.31, MAP2K2 (human) mapping to 19p13.3; Map2k1 (mouse) mapping to 9 C, Map2k2 (mouse) mapping to 10 C1.

SOURCE

p-MEK-1/2 (7E10) is a mouse monoclonal antibody raised against phosphopeptide corresponding to amino acid residues surrounding the T-E-Y motif of MEK-1/2 of human origin.

PRODUCT

Each vial contains 50 µg IgG_1 kappa light chain in 0.5 ml of PBS with < 0.1% sodium azide, 0.1% gelatin, PEG and sucrose.

APPLICATIONS

p-MEK-1/2 (7E10) is recommended for detection of Ser 218 and 222 phosphorylated MEK-1 and Ser 222 and 226 phosphorylated MEK-2 of mouse, rat, human and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Molecular Weight of MEK-1: 45 kDa.

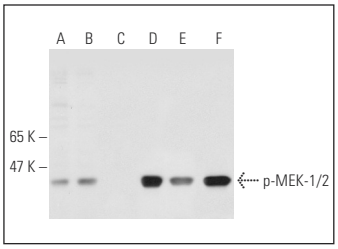
Molecular Weight of MEK-2: 47 kDa.

Positive Controls: A549 cell lysate: sc-2413, HeLa-PMA cell lysate: sc-2258 or NIH/3T3 whole cell lysate: sc-2210.

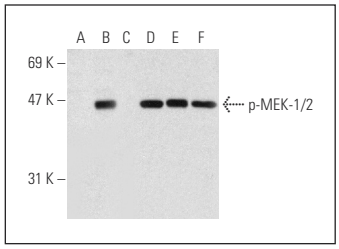
STORAGE

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

DATA



Western blot analysis of MEK-1/2 phosphorylation in untreated (**A**,**D**), PDGF treated (**B**,**E**) and PDGF and lambda protein phosphatase (sc-200312A) treated (**C**,**F**) NIH/3T3 whole cell lysates. Antibodies tested include p-MEK-1/2 (7E10): sc-81503 (**A**,**B**,**C**) and MEK-1 (H-8): sc-6250 (**D**,**E**,**F**).



Western blot analysis of MEK-1/2 phosphorylation in untreated (**A**,**D**), serum-starved, PMA-treated (**B**,**E**), serum-starved, PMA and lambda protein phosphatase (sc-200312A) treated (**C**,**F**) HeLa whole cell lysates. Antibodies tested include p-MEK-1/2 (7E10): sc-81503 (**A**,**B**,**C**) and MEK-1 (H-8): sc-6250 (**D**,**E**,**F**).

SELECT PRODUCT CITATIONS

1. Kumarasamy, V.M., et al. 2015. Selective repression of RET proto-oncogene in medullary thyroid carcinoma by a natural alkaloid berberine. BMC Cancer 15: 599.
2. Zhang, D., et al. 2017. Downregulation of ATP1A1 promotes cancer development in renal cell carcinoma. Clin. Proteomics 14: 15.
3. Kim, I.H. and Nam, T.J. 2018. Fucoidan downregulates Insulin-like growth factor-I receptor levels in HT-29 human colon cancer cells. Oncol. Rep. 39: 1516-1522.
4. Kang, Y.M., et al. 2018. Inhibitory effects of bee venom on mast cell-mediated allergic inflammatory responses. Int. J. Mol. Med. 41: 3717-3726.
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6. Liu, P., et al. 2019. Crude protein from spirulina increases the viability of CCD-986sk cells via the EGFR/MAPK signaling pathway. Int. J. Mol. Med. 43: 771-778.
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8. Xing, J., et al. 2019. TRPM7 channel inhibition exacerbates pulmonary arterial hypertension through MEK/ERK pathway. Aging 11: 4050-4065.
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10. Chen, H., et al. 2020. TGF-β1/IL-11/MEK/ERK signaling mediates senescence-associated pulmonary fibrosis in a stress-induced premature senescence model of Bmi-1 deficiency. Exp. Mol. Med. 52: 130-151.

RESEARCH USE

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