SANTA CRUZ BIOTECHNOLOGY, INC.

p-MEK-1 (47.Ser 222): sc-136542

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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 (RAF or 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, MKK2. 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 kinse (MKK6). 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 (p38β). J. Biol. Chem. 271: 17920-17926.
7. Tournier, C., et al. 1997. Mitogen-activated protein kinase kinase 7 is an activator of the c-Jun NH_2-terminal kinase. Proc. Natl. Acad. Sci. USA 94: 7337-7442.
8. Holland, P.M., et al. 1997. MKK7 is a stress-activated mitogen-activated protein kinase kinase functionally related to hemipterous. J. Biol. Chem. 272: 24994-24998.
9. Wu, Z., et al. 1997. Molecular cloning and characterization of human JNKK2, a novel Jun NH_2-terminal kinase-specific kinase. Mol. Cell. Biol. 17: 7407-7416.

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 (47.Ser 222) is a mouse monoclonal antibody raised against a short amino acid sequence containing Ser 222 phosphorylated MEK-1 of human origin.

PRODUCT

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

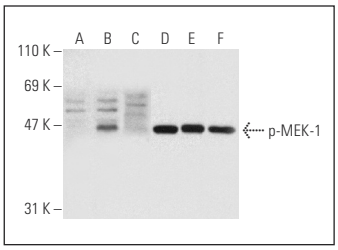
APPLICATIONS

p-MEK-1 (47.Ser 222) is recommended for detection of Ser 222 phosphorylated MEK-1 and Ser 222 phosphorylated MEK-2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Molecular Weight of p-MEK-1: 45 kDa.

Positive Controls: HeLa + serum-starved + PMA cell lysate: sc-24695, T-47D cell lysate: sc-2293 or HeLa whole cell lysate: sc-2200.

DATA



Western blot analysis of MEK-1 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 (47.Ser 222): sc-136542 (**A**,**B**,**C**) and MEK-1 (H-8): sc-6250 (**D**,**E**,**F**).

SELECT PRODUCT CITATIONS

1. Huang, C.Y., et al. 2012. Thrombin induces epidermal growth factor receptor transactivation and CCL2 expression in human osteoblasts. Arthritis Rheum. 64: 3344-3354.
2. Wu, C.L., et al. 2013. Ras activation mediates WISP-1-induced increases in cell motility and matrix metalloproteinase expression in human osteosarcoma. Cell. Signal. 25: 2812-2822.
3. Miao, W. and Wang, Y. 2019. Quantitative interrogation of the human kinome perturbed by two BRAF inhibitors. J. Proteome Res. 18: 2624-2631.

STORAGE

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

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.