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 for MEKK1) positively regulates the kinase activity.

REFERENCES


CHROMOSOMAL LOCATION

Genetic locus: MAP2K1 (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, 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-2229.

Western blot analysis of MEK-1/2 phosphorylation in untreated (A, D), PDGF treated (B, E) and PDGF and lambda protein phosphatase (sc-200172A) 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-200172A) 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


RESEARCH USE

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