

MKP-3 (F-12): sc-377070

BACKGROUND

Mitogen-activated protein (MAP) kinases are a large class of proteins involved in signal transduction pathways that are activated by a range of stimuli and mediate a number of physiological and pathological changes in the cell. Dual specificity phosphatases (DSPs) are a subclass of the protein tyrosine phosphatase (PTP) gene superfamily, which are selective for dephosphorylating critical phosphothreonine and phosphotyrosine residues within MAP kinases. DSP gene expression is induced by a host of growth factors and/or cellular stresses, thereby negatively regulating MAP kinase superfamily members including MAPK/ERK, SAPK/JNK and p38. The members of the dual-specificity phosphatase protein family include MKP-1/CL100 (3CH134), VHR, PAC1, MKP-2, hVH-3 (B23), hVH-5, MKP-3, MKP-X, and MKP-4. Human MKP-3 maps to chromosome 12q21.33 and encodes a 381 amino acid protein that specifically inactivates members of the ERK family and is expressed in a variety of tissues with the highest levels in heart and pancreas.

REFERENCES

1. Keyse, S.M. 1995. An emerging family of dual specificity MAP kinase phosphatases. *Biochim. Biophys. Acta* 1265: 152-160.
2. Muda, M., et al. 1997. Molecular cloning and functional characterization of a novel mitogen-activated protein kinase phosphatase, MKP-4. *J. Biol. Chem.* 272: 5141-5151.

CHROMOSOMAL LOCATION

Genetic locus: DUSP6 (human) mapping to 12q21.33; Dusp6 (mouse) mapping to 10 D1.

SOURCE

MKP-3 (F-12) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 353-381 at the C-terminus of MKP-3 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

MKP-3 (F-12) is available conjugated to agarose (sc-377070 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-377070 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-377070 PE), fluorescein (sc-377070 FITC), Alexa Fluor® 488 (sc-377070 AF488), Alexa Fluor® 546 (sc-377070 AF546), Alexa Fluor® 594 (sc-377070 AF594) or Alexa Fluor® 647 (sc-377070 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-377070 AF680) or Alexa Fluor® 790 (sc-377070 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-377070 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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STORAGE

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

APPLICATIONS

MKP-3 (F-12) is recommended for detection of MKP-3 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg 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).

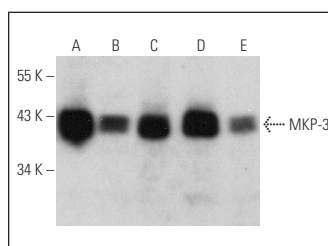
MKP-3 (F-12) is also recommended for detection of MKP-3 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for MKP-3 siRNA (h): sc-39000, MKP-3 siRNA (m): sc-39001, MKP-3 shRNA Plasmid (h): sc-39000-SH, MKP-3 shRNA Plasmid (m): sc-39001-SH, MKP-3 shRNA (h) Lentiviral Particles: sc-39000-V and MKP-3 shRNA (m) Lentiviral Particles: sc-39001-V.

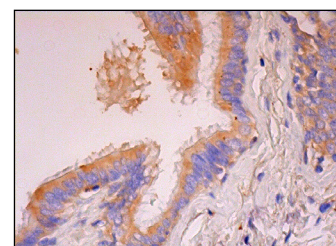
Molecular Weight of MKP-3: 42 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, A549 cell lysate: sc-2413 or c4 whole cell lysate: sc-364186.

DATA



MKP-3 (F-12): sc-377070. Western blot analysis of MKP-3 expression in Hep G2 (A), A549 (B), AMJ2-C8 (C), c4 (D) and KNRK (E) whole cell lysates.



MKP-3 (F-12): sc-377070. Immunoperoxidase staining of formalin fixed, paraffin-embedded human bronchus tissue showing cytoplasmic staining of respiratory epithelial cells.

SELECT PRODUCT CITATIONS

1. Souza Pauli, L.S., et al. 2014. Exercise training decreases mitogen-activated protein kinase phosphatase-3 expression and suppresses hepatic gluconeogenesis in obese mice. *J. Physiol.* 592: 1325-1340.
2. Tuglu, M.M., et al. 2018. The role of dual-specificity phosphatase 1 and protein phosphatase 1 in β_2 -adrenergic receptor-mediated inhibition of extracellular signal regulated kinase 1/2 in triple negative breast cancer cell lines. *Mol. Med. Rep.* 17: 2033-2043.
3. Mori Sequeiros Garcia, M.M., et al. 2020. Angiotensin II-upregulated MAP kinase phosphatase-3 modulates FOXO1 and p21 in adrenocortical H295R cells. *Heliyon* 6: e03519.
4. Jing, T., et al. 2021. Deubiquitination of the repressor E2F6 by USP22 facilitates Akt activation and tumor growth in hepatocellular carcinoma. *Cancer Lett.* 518: 266-277.

RESEARCH USE

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