SANTA CRUZ BIOTECHNOLOGY, INC.

MKP-3 (N-18): sc-8598

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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, PAC-1, 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.
3. Sun, H. 1998. Functional studies of dual-specificity phosphatases. Methods Mol. Biol. 84: 307-318.
4. Online Mendelian Inheritance in Man, OMIM™. 1999. Johns Hopkins University, Baltimore, MD. MIM Number: 602748. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/

CHROMOSOMAL LOCATION

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

SOURCE

MKP-3 (N-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of MKP-3 of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-8598 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

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.

APPLICATIONS

MKP-3 (N-18) is recommended for detection of MKP-3 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)], 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).

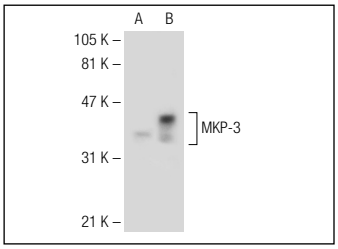
MKP-3 (N-18) is also recommended for detection of MKP-3 in additional species, including equine, canine, bovine, porcine and avian.

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.

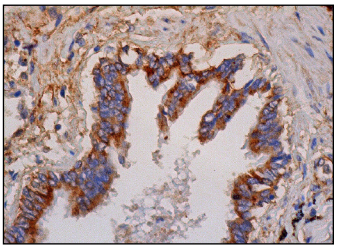
Molecular Weight of MKP-3: 42 kDa.

Positive Controls: MKP-3 (h): 293T Lysate: sc-114251.

DATA



MKP-3 (N-18): sc-8598. Western blot analysis of MKP-3 expression in non-transfected: sc-117752 (**A**) and human MKP-3 transfected: sc-114251 (**B**) 293T whole cell lysates.



MKP-3 (N-18): sc-8598. Immunoperoxidase staining of formalin fixed, paraffin-embedded human bronchus tissue showing cytoplasmic staining of respiratory epithelial cells.

SELECT PRODUCT CITATIONS

1. Takaki, M., et al. 2001. Two kinds of mitogen-activated protein kinase phosphatases, MKP-1 and MKP-3, are differentially activated by acute and chronic methamphetamine treatment in the rat brain. J. Neurochem. 79: 679-688.
2. Yaglom, J., et al. 2003. Inactivation of dual-specificity phosphatases is involved in the regulation of extracellular signal-regulated kinases by heat shock and HSP 72. Mol. Cell. Biol. 23: 3813-3824.
3. Belcher, S.M., et al. 2005. Rapid estrogenic regulation of extracellular signal-regulated kinase 1/2 signaling in cerebellar granule cells involves a G protein- and protein kinase A-dependent mechanism and intracellular activation of protein phosphatase 2A. Endocrinology 146: 5397-5406.
4. Monteiro, F.A., et al. 2006. Activation of ERK1/2 MAP kinases in familial amyloidotic polyneuropathy. J. Neurochem. 97: 151-161.
5. González-Fernández, L., et al. 2009. Identification of protein tyrosine phosphatases and dual-specificity phosphatases in mammalian spermatozoa and their role in sperm motility and protein tyrosine phosphorylation. Biol. Reprod. 80: 1239-1252.