

# MKP-7 (D-14): sc-47903

## 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 (DUSPs) are a subclass of the protein tyrosine phosphatase (PTP) gene superfamily, which are selective for dephosphorylating critical phosphothreonine and phosphotyrosine residues within MAP kinases. DUSP 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. MKP-7 binds to and inactivates p38 MAPK isoforms  $\alpha$  and  $\beta$ , and JNK/SAPK, but not ERK. ERK phosphorylates MKP-7 on Ser 446, thereby stabilizing the protein and blocking JNK activation. MKP-7 is predominantly localized in the cytoplasm, but becomes exclusively nuclear following leptomycin B treatment.

## REFERENCES

1. Keyse, S.M. 1995. An emerging family of dual specificity MAP kinase phosphatases. *Biochim. Biophys. Acta* 1265: 152-160.
2. Sun, H. 1998. Functional studies of dual-specificity phosphatases. *Methods Mol. Biol.* 84: 307-318.
3. Tanoue, T., Yamamoto, T., Maeda, R. and Nishida, E. 2001. A Novel MAPK phosphatase MKP-7 acts preferentially on JNK/SAPK and p38  $\alpha$  and  $\beta$  MAPKs. *J. Biol. Chem.* 276: 26629-26639.
4. Masuda, K., Shima, H., Watanabe, M. and Kikuchi, K. 2001. MKP-7, a novel mitogen-activated protein kinase phosphatase, functions as a shuttle protein. *J. Biol. Chem.* 276: 39002-39011.
5. Hoornaert, I., Marynen, P., Goris, J., Sciote, R. and Baens, M. 2003. MAPK phosphatase DUSP16/MKP-7, a candidate tumor suppressor for chromosome region 12p12-13, reduces BCR-ABL-induced transformation. *Oncogene* 22: 7728-7736.
6. Masuda, K., Shima, H., Katagiri, C. and Kikuchi, K. 2003. Activation of ERK induces phosphorylation of MAPK phosphatase-7, a JNK specific phosphatase, at Ser-446. *J. Biol. Chem.* 278: 32448-32456.

## CHROMOSOMAL LOCATION

Genetic locus: DUSP16 (human) mapping to 12p13.2; Dusp16 (mouse) mapping to 6 G1.

## SOURCE

MKP-7 (D-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of MKP-7 of mouse origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-47903 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

MKP-7 (D-14) is recommended for detection of MKP-7 of mouse, rat and, to a lesser extent, human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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-7 (D-14) is also recommended for detection of MKP-7 in additional species, including equine and canine.

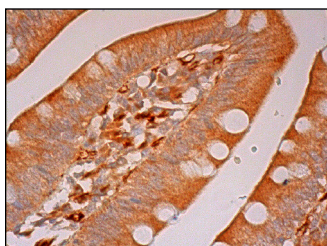
Suitable for use as control antibody for MKP-7 siRNA (h): sc-61052, MKP-7 siRNA (m): sc-61053, MKP-7 shRNA Plasmid (h): sc-61052-SH, MKP-7 shRNA Plasmid (m): sc-61053-SH, MKP-7 shRNA (h) Lentiviral Particles: sc-61052-V and MKP-7 shRNA (m) Lentiviral Particles: sc-61053-V.

Molecular Weight of MKP-7: 73 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 3) Immunohistochemistry: use ImmunoCruz™: sc-2053 or ABC: sc-2023 goat IgG Staining Systems.

## DATA



MKP-7 (D-14): sc-47903. Immunoperoxidase staining of formalin fixed, paraffin-embedded human small intestine tissue showing cytoplasmic staining of glandular cells.

## 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.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.