

MKP-2 (48): sc-135991

BACKGROUND

MKP-2 (MAP kinase phosphatase 2, dual specificity protein phosphatase 4 (DUSP4)) is a phosphatase involved in the complex MAPKKK cascade. MKP-2 belongs to the protein-tyrosine phosphatase family (non-receptor class dual specificity subfamily) and contains one rhodanese domain and one tyrosine-protein phosphatase domain. A dual specificity protein phosphatase, MKP-2 has a stringent substrate specificity for MAPKs. It acts to regulate mitogenic signal transduction by dephosphorylating both Thr and Tyr residues on MAP kinases ERK 1 and ERK 2. Transcription factor E2F-1, which is responsible for mediating apoptosis and suppressing tumorigenesis, acts as a transcriptional regulator of MKP-2. E2F-1 is physically associated with the MKP-2 promoter and can transactivate the promoter of the MKP-2 gene. Specifically, E2F-1 binds to a perfect palindromic motif in the MKP-2 promoter. MKP-2 is an essential cell death mediator in the E2F-1 pathway and may lead to the development of new strategies for cancer treatment.

REFERENCES

1. Shen, W.H., et al. 2006. Mitogen-activated protein kinase phosphatase-2: a novel transcription target of p53 in apoptosis. *Cancer Res.* 66: 6033-6039.
2. Zhou, B., et al. 2006. Mapping ERK 2-MKP-3 binding interfaces by hydrogen/deuterium exchange mass spectrometry. *J. Biol. Chem.* 281: 38834-38844.
3. Tresini, M., et al. 2007. Modulation of replicative senescence of diploid human cells by nuclear ERK signaling. *J. Biol. Chem.* 282: 4136-4151.
4. Wang, H., et al. 2007. HoxA10 activates transcription of the gene encoding mitogen-activated protein kinase phosphatase-2 (MKP-2) in myeloid cells. *J. Biol. Chem.* 282: 16164-16176.
5. Wang, J., et al. 2007. A molecular link between E2F-1 and the MAPK cascade. *J. Biol. Chem.* 282: 18521-18531.
6. Niwa, Y., et al. 2007. The initiation and propagation of HES7 oscillation are cooperatively regulated by FGF and notch signaling in the somite segmentation clock. *Dev. Cell* 13: 298-304.
7. Teng, C.H., et al. 2007. Several dual specificity phosphatases coordinate to control the magnitude and duration of JNK activation in signaling response to oxidative stress. *J. Biol. Chem.* 282: 28395-28407.

CHROMOSOMAL LOCATION

Genetic locus: DUSP4 (human) mapping to 8p12; Dusp4 (mouse) mapping to 8 A4.

SOURCE

MKP-2 (48) is a mouse monoclonal antibody raised against amino acids 13-127 of MKP-2 of rat origin.

PRODUCT

Each vial contains 50 µg IgG₁ in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

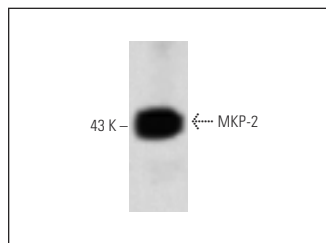
MKP-2 (48) is recommended for detection of MKP-2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for MKP-2 siRNA (h): sc-38998, MKP-2 siRNA (m): sc-38999, MKP-2 shRNA Plasmid (h): sc-38998-SH, MKP-2 shRNA Plasmid (m): sc-38999-SH, MKP-2 shRNA (h) Lentiviral Particles: sc-38998-V and MKP-2 shRNA (m) Lentiviral Particles: sc-38999-V.

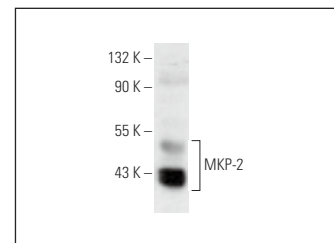
Molecular Weight of MKP-2: 43 kDa.

Positive Controls: SW480 cell lysate: sc-2219, rat spleen extract: sc-2397 or RAW 264.7 whole cell lysate: sc-2211.

DATA



MKP-2 (48): sc-135991. Western blot analysis of MKP-2 expression in rat spleen tissue extract.



MKP-2 (48): sc-135991. Western blot analysis of MKP-2 expression in SW480 whole cell lysate.

SELECT PRODUCT CITATIONS

1. Kapadia, B., et al. 2018. Fatty acid synthase induced S6Kinase facilitates USP11-elf4B complex formation for sustained oncogenic translation in DLBCL. *Nat. Commun.* 9: 829.
2. Kapadia, B.B., et al. 2022. PARK2 regulates elf4B-driven lymphomagenesis. *Mol. Cancer Res.* 20: 735-748.

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.