SANTA CRUZ BIOTECHNOLOGY, INC.

MKP-2 (F-10): sc-17821

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

MKP-2 (MAP kinase phosphatase 2, Dual specificity protein phosphatase 4 (DUSP4)) is a phoshpatase 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 ERK2-MKP3 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 (Mkp2) in myeloid cells. J. Biol. Chem. 282: 16164-16176.

CHROMOSOMAL LOCATION

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

SOURCE

MKP-2 (F-10) is a mouse monoclonal antibody raised against amino acids 78-144 of MKP-2 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

MKP-2 (F-10) is available conjugated to agarose (sc-17821 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-17821 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-17821 PE), fluorescein (sc-17821 FITC), Alexa Fluor® 488 (sc-17821 AF488), Alexa Fluor® 546 (sc-17821 AF546), Alexa Fluor® 594 (sc-17821 AF594) or Alexa Fluor® 647 (sc-17821 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-17821 AF680) or Alexa Fluor® 790 (sc-17821 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

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

APPLICATIONS

MKP-2 (F-10) is recommended for detection of MKP-2 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:500), 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

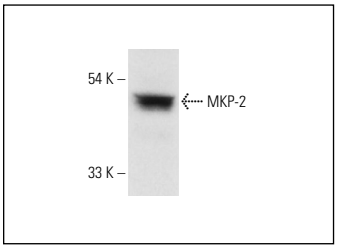
MKP-2 (F-10) is also recommended for detection of MKP-2 in additional species, including equine, bovine and porcine.

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 (m): sc-38999-SH, MKP-2 shRNA (h) Lentiviral Particles: sc-38998-V and MKP-2 shRNA (m): sc-38999-V.

Molecular Weight of MKP-2: 43 kDa.

Positive Controls: HeLa + UV irradiated cell lysate: sc-2221, Jurkat + PMA cell lysate: sc-24718 or SK-BR-3 + PMA cell lysate: sc-24773.

DATA



MKP-2 (F-10): sc-17821. Western blot analysis of MKP-2 expression in Hela + UV whole cell lysate.

SELECT PRODUCT CITATIONS

1. Fleming, J.B., et al. 2005. Molecular consequences of silencing mutant K-Ras in pancreatic cancer cells: justification for K-Ras-directed therapy. Mol. Cancer Res. 3: 413-423.
2. Boulding, T., et al. 2016. Differential roles for DUSP family members in epithelial-to-mesenchymal transition and cancer stem cell regulation in breast cancer. PLoS ONE 11: e0148065.
3. Shao, Z., et al. 2020. RNA sequence analyses throughout the course of mouse cardiac laminopathy identify differentially expressed genes for cell cycle control and mitochondrial function. Sci. Rep. 10: 6632.
4. Weiss, N., et al. 2021. Profiling and validation of live-cell protein methylation with engineered enzymes and methionine analogues. Curr. Protoc. 1: e213.

RESEARCH USE

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