

MKP-3 (G-4): sc-137246

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.

CHROMOSOMAL LOCATION

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

SOURCE

MKP-3 (G-4) is a mouse monoclonal antibody raised against amino acids 1-130 mapping at the N-terminus of MKP-3 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-3 (G-4) is available conjugated to agarose (sc-137246 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-137246 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-137246 PE), fluorescein (sc-137246 FITC), Alexa Fluor® 488 (sc-137246 AF488), Alexa Fluor® 546 (sc-137246 AF546), Alexa Fluor® 594 (sc-137246 AF594) or Alexa Fluor® 647 (sc-137246 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-137246 AF680) or Alexa Fluor® 790 (sc-137246 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

MKP-3 (G-4) 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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.

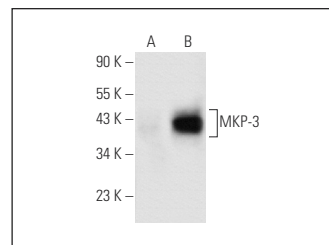
Molecular Weight of MKP-3: 42 kDa.

Positive Controls: MKP-3 (h): 293T Lysate: sc-114251 or MKP-3 (m): 293T Lysate: sc-121681.

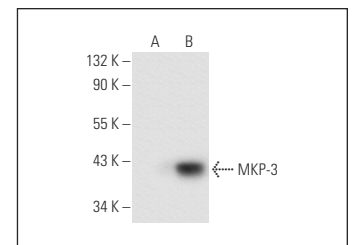
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



MKP-3 (G-11): sc-137245. Western blot analysis of MKP-3 expression in non-transfected: sc-117752 (A) and mouse MKP-3 transfected: sc-121681 (B). 293T whole cell lysates.



MKP-3 (G-4): sc-137246. 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.

SELECT PRODUCT CITATIONS

1. Tanaka, H., et al. 2018. Selective TRK inhibitor CH7057288 against TRK fusion-driven cancer. *Mol. Cancer Ther.* 17: 2519-2529.
2. Unni, A.M., et al. 2018. Hyperactivation of ERK by multiple mechanisms is toxic to RTK-RAS mutation-driven lung adenocarcinoma cells. *Elife* 7: e33718.
3. Zavala, M.R., et al. 2019. p38-MAP kinase negatively regulates the slow force response to stretch in rat myocardium through the up-regulation of dual specificity phosphatase 6 (DUSP6). *Cell. Physiol. Biochem.* 52: 172-185.
4. Kanda, Y., et al. 2021. Downregulation of DUSP6, a negative regulator of oncogenic ERK signaling, by ACA-28 induces apoptosis in NIH/3T3 cells overexpressing HER2/ErbB2. *Genes Cells* 26: 109-116.
5. Luo, Y., et al. 2021. Cooperative binding of ETS2 and NFAT link Erk1/2 and calcineurin signaling in the pathogenesis of cardiac hypertrophy. *Circulation* 144: 34-51.

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.

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