

# MRCK $\alpha$ (B-3): sc-374568



The Power to Question

## BACKGROUND

Protein kinases comprise a large group of encoded factors that regulate cellular processes by catalyzing the transfer of a phosphate group to a hydroxyl acceptor in serine, threonine or tyrosine residues. Myotonic dystrophy kinase-related Cdc42-binding (DMPK-like) kinases- $\alpha$  and  $\beta$  (MRCK $\alpha$ ,  $\beta$ ) contain a cysteine-rich motif and a putative pleckstrin homology domain. MRCKs can phosphorylate nonmuscle Myosin light chain and influences Actin-Myosin contractility. MRCK $\alpha$  can phosphorylate and activate LIM kinases downstream of Cdc42, which leads to inactivation of ADF/Cofilin and to Actin cytoskeletal reorganization. MRCK $\alpha$  can also influence neurite outgrowth promoted by Cdc42 and Rac.

## CHROMOSOMAL LOCATION

Genetic locus: CDC42BPA (human) mapping to 1q42.13; Cdc42bpa (mouse) mapping to 1 H4.

## SOURCE

MRCK $\alpha$  (B-3) is a mouse monoclonal antibody raised against amino acids 467-556 mapping within an internal region of MRCK $\alpha$  of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG $_1$  kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

MRCK $\alpha$  (B-3) is available conjugated to agarose (sc-374568 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-374568 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-374568 PE), fluorescein (sc-374568 FITC), Alexa Fluor<sup>®</sup> 488 (sc-374568 AF488), Alexa Fluor<sup>®</sup> 546 (sc-374568 AF546), Alexa Fluor<sup>®</sup> 594 (sc-374568 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-374568 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-374568 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-374568 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

## APPLICATIONS

MRCK $\alpha$  (B-3) is recommended for detection of MRCK $\alpha$  of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g 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 MRCK $\alpha$  siRNA (h): sc-60058, MRCK $\alpha$  siRNA (m): sc-60059, MRCK $\alpha$  shRNA Plasmid (h): sc-60058-SH, MRCK $\alpha$  shRNA Plasmid (m): sc-60059-SH, MRCK $\alpha$  shRNA (h) Lentiviral Particles: sc-60058-V and MRCK $\alpha$  shRNA (m) Lentiviral Particles: sc-60059-V.

Molecular Weight of MRCK $\alpha$ : 190 kDa.

Positive Controls: rat brain extract: sc-2392, rat heart extract: sc-2393 or Neuro-2A whole cell lysate: sc-364185.

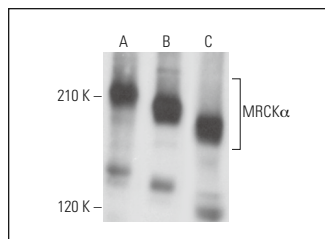
## STORAGE

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

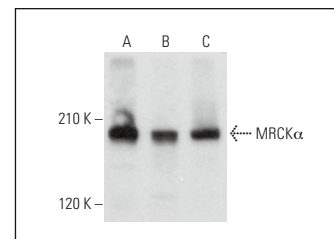
## RESEARCH USE

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

## DATA



MRCK $\alpha$  (B-3): sc-374568. Western blot analysis of MRCK $\alpha$  expression in rat brain (A), human brain (B) and rat heart (C) tissue extracts.



MRCK $\alpha$  (B-3): sc-374568. Western blot analysis of MRCK $\alpha$  expression in Neuro-2A (A), EOC 20 (B) and IMR-32 (C) whole cell lysates.

## SELECT PRODUCT CITATIONS

- Shiraishi, A., et al. 2017. DOCK8 protein regulates macrophage migration through Cdc42 protein activation and LRAP35a protein interaction. *J. Biol. Chem.* 292: 2191-2202.
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- Bai, H., et al. 2021. The Na<sup>+</sup>, K<sup>+</sup>-ATPase  $\beta$ 1 subunit regulates epithelial tight junctions via MRCK $\alpha$ . *JCI Insight* 6: e134881.
- Jiang, Z., et al. 2023. Distinct shared and compartment-enriched oncogenic networks drive primary versus metastatic breast cancer. *Nat. Commun.* 14: 4313.
- Baran, B., et al. 2023. MRCK $\alpha$ / $\beta$  positively regulates Gli protein activity. *Cell. Signal.* 107: 110666.
- Manolis, D., et al. 2024. Quantitative proteomics reveals CLR interactome in primary human cells. *J. Biol. Chem.* 300: 107399.
- Yamaguchi, H., et al. 2024. MRCK as a potential target for claudin-low subtype of breast cancer. *Int. J. Biol. Sci.* 20: 1-14.

## PROTOCOLS

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

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