

## MK (A-9): sc-46701



The Power to Question

## BACKGROUND

Midkine, or MK, is a heparin-binding molecule involved in the regulation of growth and differentiation during embryogenesis. MK expression is tightly regulated during embryonic development by steroid receptors of the retinoic acid superfamily. The mature human MK protein is 118 amino acids in length and contains five intrachain disulfide bonds. MK is a non-glycosylated protein that shows greater than 87% identity between human and mouse. The carboxy-terminus of MK contains the principle heparin-binding site and the molecule's neurite-promoting sequences; both the amino and carboxy-terminal sequences are required for the molecule's neurotrophic properties. An association between overexpression of MK and colon adenocarcinoma has been shown in families suffering from familial polyposis. In addition, MK functions to enhance the activity of plasminogen activator (PA).

## CHROMOSOMAL LOCATION

Genetic locus: MDK (human) mapping to 11p11.2.

## SOURCE

MK (A-9) is a mouse monoclonal antibody raised against amino acids 79-143 of MK of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

MK (A-9) is available conjugated to agarose (sc-46701 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-46701 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-46701 PE), fluorescein (sc-46701 FITC), Alexa Fluor® 488 (sc-46701 AF488), Alexa Fluor® 546 (sc-46701 AF546), Alexa Fluor® 594 (sc-46701 AF594) or Alexa Fluor® 647 (sc-46701 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-46701 AF680) or Alexa Fluor® 790 (sc-46701 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

## APPLICATIONS

MK (A-9) is recommended for detection of precursor and mature MK of 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), 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).

Suitable for use as control antibody for MK siRNA (h): sc-39711, MK shRNA Plasmid (h): sc-39711-SH and MK shRNA (h) Lentiviral Particles: sc-39711-V.

Molecular Weight of MK: 13 kDa.

Positive Controls: MK (h): 293T Lysate: sc-159960.

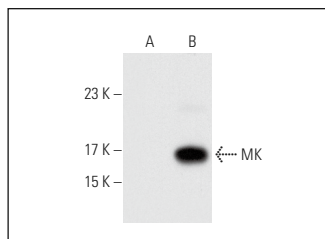
## STORAGE

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

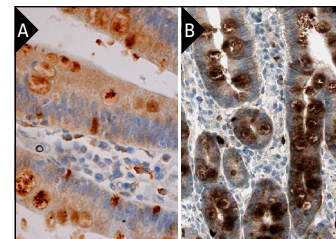
## RESEARCH USE

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

## DATA



MK (A-9): sc-46701. Western blot analysis of MK expression in non-transfected: sc-117752 (A) and human MK transfected: sc-159960 (B) 293T whole cell lysates.



MK (A-9): sc-46701. Immunoperoxidase staining of formalin fixed, paraffin-embedded human small intestine tissue showing cytoplasmic staining of glandular cells (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human duodenum tissue showing cytoplasmic staining of glandular cells. Kindly provided by The Swedish Human Protein Atlas (HPA) program (B).

## SELECT PRODUCT CITATIONS

- Jham, B.C., et al. 2012. Midkine expression in oral squamous cell carcinoma and leukoplakia. *J. Oral Pathol. Med.* 41: 21-26.
- Edfeldt, K., et al. 2017. DcR3, TFF3, and midkine are novel serum biomarkers in small intestinal neuroendocrine tumors. *Neuroendocrinology* 105: 170-181.
- Petrusel, L., et al. 2019. Relationship between cachexia and perineural invasion in pancreatic adenocarcinoma. *World J. Gastrointest. Oncol.* 11: 1126-1140.
- Cerezo-Wallis, D., et al. 2020. Midkine rewires the melanoma microenvironment toward a tolerogenic and immune-resistant state. *Nat. Med.* 26: 1865-1877.
- Sheng, B., et al. 2021. USP12 promotes breast cancer angiogenesis by maintaining midkine stability. *Cell Death Dis.* 12: 1074.
- Said, E.A., et al. 2022. Human macrophages and monocyte-derived dendritic cells stimulate the proliferation of endothelial cells through midkine production. *PLoS ONE* 17: e0267662.
- Xue, M., et al. 2023. Schwann cells regulate tumor cells and cancer-associated fibroblasts in the pancreatic ductal adenocarcinoma microenvironment. *Nat. Commun.* 14: 4600.
- Hashimoto, M., et al. 2024. Spatial and single-cell colocalisation analysis reveals MDK-mediated immunosuppressive environment with regulatory T cells in colorectal carcinogenesis. *EBioMedicine* 103: 105102.

## PROTOCOLS

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

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