SANTA CRUZ BIOTECHNOLOGY, INC.

MYLK (A-8): sc-365352

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The Ca^{2+}/calmodulin-dependent protein kinases (CaM kinases) are a structurally related subfamily of serine/threonine kinases that includes CaMKI, CaMKII, CaMKIV and Myosin light chain kinases (MYLK, also designated MLCK). The MYLK kinases phosphorylate Myosin regulatory light chains to catalyze Myosin interaction with Actin filaments resulting in contractile activity. Non-muscle, smooth muscle and skeletal/cardiac muscle MYLK isoforms exist. The MYLK gene (also designated MYLK1) encodes both smooth muscle and non-muscle isoforms as well as telokin, a small C-terminal isoform expressed only in smooth muscle with the capacity to stabilize unphosphorylated Myosin filaments. Multiple transcript variants are described for the MYLK gene. Smooth-muscle and non-muscle MYLK isoforms are expressed in a wide variety of adult and fetal tissues. The skeletal/cardiac muscle isoform of MYLK are encoded by a separate gene, MYLK2 (also designated skMLCK). MYLK appears to be a target for PAKs (p21-activated kinases). PAK1 interaction with MYLK results in a decrease in MYLK activity and Myosin light chain phosphorylation.

CHROMOSOMAL LOCATION

Genetic locus: MYLK (human) mapping to 3q21.1; Mylk (mouse) mapping to 16 B3.

SOURCE

MYLK (A-8) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 21-47 near the N-terminus of MYLK of human origin.

PRODUCT

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

MYLK (A-8) is available conjugated to agarose (sc-365352 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-365352 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365352 PE), fluorescein (sc-365352 FITC), Alexa Fluor® 488 (sc-365352 AF488), Alexa Fluor® 546 (sc-365352 AF546), Alexa Fluor® 594 (sc-365352 AF594) or Alexa Fluor® 647 (sc-365352 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365352 AF680) or Alexa Fluor® 790 (sc-365352 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-365352 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

APPLICATIONS

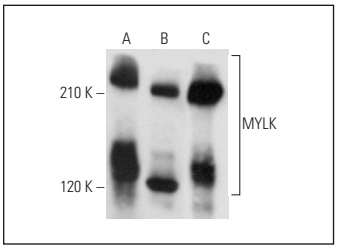
MYLK (A-8) is recommended for detection of most MYLK isoforms of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), 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 MYLK siRNA (h): sc-35941, MYLK siRNA (m): sc-35942, MYLK shRNA Plasmid (h): sc-35941-SH, MYLK shRNA Plasmid (m): sc-35942-SH, MYLK shRNA (h) Lentiviral Particles: sc-35941-V and MYLK shRNA (m) Lentiviral Particles: sc-35942-V.

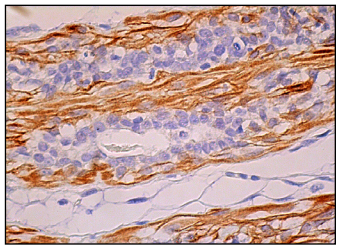
Molecular Weight of MYLK isoforms: 210/135 kDa.

Positive Controls: A-10 cell lysate: sc-3806, HISM cell lysate: sc-2229 or BC_3H1 cell lysate: sc-2299.

DATA



MYLK (A-8): sc-365352. Western blot analysis of MYLK expression in A-10 (**A**), BC_3H1 (**B**) and HISM (**C**) whole cell lysates.



MYLK (A-8): sc-365352. Immunoperoxidase staining of formalin fixed, paraffin-embedded human breast tissue showing membrane and cytoplasmic staining of myoepithelial cells.

SELECT PRODUCT CITATIONS

1. Nguyen, C.H., et al. 2016. 12(S)-HETE increases intracellular Ca^{2+} in lymph-endothelial cells disrupting their barrier function *in vitro;* stabilization by clinical drugs impairing calcium supply. Cancer Lett. 380: 174-183.
2. Wang, G., et al. 2019. Glabridin attenuates endothelial dysfunction and permeability, possibly via the MLCK/p-MLC signaling pathway. Exp. Ther. Med. 17: 107-114.
3. Srivastava, N., et al. 2020. Noncanonical function of long Myosin light chain kinase in increasing ER-PM junctions and augmentation of SOCE. FASEB J. 34: 12805-12819.
4. Sun, X., et al. 2021. Genetic and epigenetic regulation of the non-muscle Myosin light chain kinase isoform by lung inflammatory factors and mechanical stress. Clin. Sci. 135: 963-977.
5. Keeratichamroen, S., et al. 2023. p-STAT3 influences doxorubicin and etoposide resistance of A549 cells grown in an *in vitro* 3D culture model. Oncol. Rep. 49: 71.

RESEARCH USE

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