

MYLK (MLJ-9): sc-69868

BACKGROUND

The Ca²⁺/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 isoforms 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.

REFERENCES

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2. Haribabu, B., et al. 1995. Human calcium-calmodulin dependent protein kinase I: cDNA cloning, domain structure and activation by phosphorylation at Threonine 177 by calcium-calmodulin dependent protein kinase I kinase. *EMBO J.* 14: 3679-3686.
3. Potier, M.C., et al. 1995. The human myosin light chain kinase (MLCK) from hippocampus: cloning, sequencing, expression, and localization to 3qcen-q21. *Genomics* 29: 562-570.
4. Garcia, J.G., et al. 1997. Myosin light chain kinase in endothelium: molecular cloning and regulation. *Am. J. Respir. Cell Mol. Biol.* 16: 489-494.
5. Sanders, L.C., et al. 1999. Inhibition of myosin light chain kinase by p21-activated kinase. *Science* 283: 2083-2085.
6. Lazar, V. and Garcia, J.G. 1999. A single human myosin light chain kinase gene (MLCK; MYLK). *Genomics* 57: 256-267.
7. Watterson, D.M., et al. 1999. Analysis of the kinase-related protein gene found at human chromosome 3q21 in a multi-gene cluster: organization, expression, alternative splicing, and polymorphic marker. *J. Cell. Biochem.* 75: 481-491.
8. Walker, L.A., et al. 2001. Site-specific phosphorylation and point mutations of telokin modulate its Ca²⁺-desensitizing effect in smooth muscle. *J. Biol. Chem.* 276: 24519-24524.

CHROMOSOMAL LOCATION

Genetic locus: MYLK (human) mapping to 3q21.1.

SOURCE

MYLK (MLJ-9) is a mouse monoclonal antibody raised against MYLK of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

MYLK (MLJ-9) is recommended for detection of MYLK of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000).

Suitable for use as control antibody for MYLK siRNA (h): sc-35941, MYLK shRNA Plasmid (h): sc-35941-SH and MYLK shRNA (h) Lentiviral Particles: sc-35941-V.

Molecular Weight of MYLK isoforms 1/2: 210/135 kDa.

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.

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.

PROTOCOLS

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



See **MYLK (A-8): sc-365352** for MYLK antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.