SANTA CRUZ BIOTECHNOLOGY, INC.

MYLK4 siRNA (m): sc-270336

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 (MYLKs). 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. MYLK4 (myosin light chain kinase family member 4), also known as sugen kinase 85 (SGK085), is a 388 amino acid protein that exists as two alternatively spliced isoforms. MYLK4 catalyzes the conversion of ATP to ADP and contains one protein kinase domain. The gene encoding MYLK4 maps to human chromosome 6p25.2 and mouse chromosome 13 A3.2.

REFERENCES

1. Roush, C.L., et al. 1988. Isolation of the cDNA encoding rat skeletal muscle myosin light chain kinase. Sequence and tissue distribution. J. Biol. Chem. 263: 10510-10516.
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., et al. 1999. A single human myosin light chain kinase gene (MLCK; MYLK). Genomics 57: 256-267.
7. Watterson, D.M., et al. 2000. 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.

CHROMOSOMAL LOCATION

Genetic locus: Mylk4 (mouse) mapping to 13 A3.2.

PRODUCT

MYLK4 siRNA (m) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see MYLK4 shRNA Plasmid (m): sc-270336-SH and MYLK4 shRNA (m) Lentiviral Particles: sc-270336-V as alternate gene silencing products.

For independent verification of MYLK4 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-270336A, sc-270336B and sc-270336C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

MYLK4 siRNA (m) is recommended for the inhibition of MYLK4 expression in mouse cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MYLK4 gene expression knockdown using RT-PCR Primer: MYLK4 (m)-PR: sc-270336-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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