SANTA CRUZ BIOTECHNOLOGY, INC.

MYLK3 siRNA (h): sc-93234

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, also designated MLCKs). The MYLK kinases phosphorylate Myosin regulatory light chains to catalyze Myosin interaction with Actin filaments, resulting in contractile activity. MYLK3 (Myosin light chain kinase 3) is a 795 amino acid cardiac-specific protein that contains one protein kinase domain and belongs to the protein kinase superfamily. Like other MYLK kinases, MYLK3 is thought to play a role in smooth muscle contraction, specifically using magnesium as a cofactor to catalyze the ATP-dependent phosphorylation of Myosin light chain proteins. Additionally, MYLK3 may regulate sarcomere assembly in heart tissue, possibly mediating proper heart function.

REFERENCES

1. Lazar, V. and Garcia, J.G. 1999. A single human myosin light chain kinase gene (MLCK; MYLK). Genomics 57: 256-267.
2. Giorgi, D., et al. 2001. The myosin light chain kinase gene is not duplicated in mouse: partial structure and chromosomal localization of Mylk. Genomics 75: 49-56.
3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 612147 World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Seguchi, O., et al. 2007. A cardiac myosin light chain kinase regulates sarcomere assembly in the vertebrate heart. J. Clin. Invest. 117: 2812-2824.
5. Chan, J.Y., et al. 2008. Identification of cardiac-specific myosin light chain kinase. Circ. Res. 102: 571-580.

CHROMOSOMAL LOCATION

Genetic locus: MYLK3 (human) mapping to 16q11.2.

PRODUCT

MYLK3 siRNA (h) 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 MYLK3 shRNA Plasmid (h): sc-93234-SH and MYLK3 shRNA (h) Lentiviral Particles: sc-93234-V as alternate gene silencing products.

For independent verification of MYLK3 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-93234A, sc-93234B and sc-93234C.

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.

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

MYLK3 siRNA (h) is recommended for the inhibition of MYLK3 expression in human 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 MYLK3 gene expression knockdown using RT-PCR Primer: MYLK3 (h)-PR: sc-93234-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.