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SANTA CRUZ BIOTECHNOLOGY, INC.

MYL2 siRNA (h): sc-45414

BACKGROUND

Encoded by the MYL2 gene, myosin regulatory light chain 2, ventricular/cardiac muscle isoform, also designated MLC-2 or MLC2v, is part of a hexameric complex of two heavy chains and four light chains predominantly expressed in adult cardiac ventricle muscle. Myosin regulatory light chain 2 binds calcium and has been shown to be a useful molecular marker for cardiac chamber specification. The co-expression of myosin regulatory light chain 7 (MYL7) and myosin regulatory light chain 2 in the outflow tract and atrioventricular canal, together with the single expression in the atrial (MYL7) and ventricular (MYL2) myocardium, permits the delineation of their boundaries. At the amino acid level there is 96% homology between the human and mouse myosin regulatory light chain sequences. Mutations in MYL2 are correlated with mid-left ventricular chamber type hypertrophic cardiomyopathy (MVC2) as well as familial hypertrophic cardiomyopathy type 10 (CMH10).

REFERENCES

1. Kubalak, S.W., Miller-Hance, W.C., O'Brien, T.X., Dyson, E. and Chien, K.R. 1994. Chamber specification of atrial MLC2 expression precedes septation during murine cardiogenesis. J. Biol. Chem. 269: 16961-16970.
2. Gruber, P.J., Kubalak, S.W. and Chien, K.R. 1998. Downregulation of atrial markers during cardiac chamber morphogenesis is irreversible in murine embryos. Development 125: 4427-4438.
3. Franco, D., Markman, M.M., Wagenaar, G.T., Ya, J., Lamers, W.H. and Moorman, A.F. 1999. MLC2a and 2v identifies the embryonic outflow tract myocardium in the developing rodent heart. Anat. Rec. 254: 135-146.
4. Doevendans, P.A., Bronsaer, R., Lozano, P.R., Kubalak, S. and van Bilsen, M. 2000. The murine atrial MLC2 gene: a member of an evolutionarily conserved family of contractile proteins. Cytogenet. Cell Genet. 90: 248-252.
5. Nishigaki, R., Shinohara, T., Toda, T., Omori, A., Ichinose, S., Itoh, M., Shirayoshi, Y., Kurimasa, A. and Oshimura, M. 2002. An extra human chromosome 21 reduces MLC2a expression in chimeric mice and Down syndrome. Biochem. Biophys. Res. Commun. 295: 112-118.

CHROMOSOMAL LOCATION

Genetic locus: MYL2 (human) mapping to 12q24.11.

PRODUCT

MYL2 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 MYL2 shRNA Plasmid (h): sc-45414-SH and MYL2 shRNA (h) Lentiviral Particles: sc-45414-V as alternate gene silencing products.

For independent verification of MYL2 (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-45414A, sc-45414B and sc-45414C.

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

MYL2 siRNA (h) is recommended for the inhibition of MYL2 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.

GENE EXPRESSION MONITORING

MYL2 (7C9): sc-517244 is recommended as a control antibody for monitoring of MYL2 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MYL2 gene expression knockdown using RT-PCR Primer: MYL2 (h)-PR: sc-45414-PR (20 µl, 525 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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