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SANTA CRUZ BIOTECHNOLOGY, INC.

MYL2 shRNA (h) Lentiviral Particles: sc-45414-V

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., et al. 1994. Chamber specification of atrial myosin light chain-2 expression precedes septation during murine cardiogenesis. J. Biol. Chem. 269: 16961-16970.
2. Gruber, P.J., et al. 1998. Downregulation of atrial markers during cardiac chamber morphogenesis is irreversible in murine embryos. Development 125: 4427-4438.
3. Franco, D., et al. 1999. Myosin light chain 2a and 2v identifies the embryonic outflow tract myocardium in the developing rodent heart. Anat. Rec. 254: 135-146.
4. Doevendans, P.A., et al. 2000. The murine atrial myosin light chain-2 gene: a member of an evolutionarily conserved family of contractile proteins. Cytogenet. Cell Genet. 90: 248-252.
5. Nishigaki, R., et al. 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 shRNA (h) Lentiviral Particles is a pool of concentrated, transduction-ready viral particles containing 3 target-specific constructs that encode 19-25 nt (plus hairpin) shRNA designed to knock down gene expression. Each vial contains 200 µl frozen stock containing 1.0 x 10^6 infectious units of virus (IFU) in Dulbecco's Modified Eagle's Medium with 25 mM HEPES pH 7.3. Suitable for 10-20 transductions. Also see MYL2 siRNA (h): sc-45414 and MYL2 shRNA Plasmid (h): sc-45414-SH as alternate gene silencing products.

STORAGE

Store lentiviral particles at -80° C. Stable for at least one year from the date of shipment. Once thawed, particles can be stored at 4° C for up to one week. Avoid repeated freeze thaw cycles.

APPLICATIONS

MYL2 shRNA (h) Lentiviral Particles is recommended for the inhibition of myosin regulatory light chain 2 expression in human cells.

SUPPORT REAGENTS

Control shRNA Lentiviral Particles: sc-108080. Available as 200 µl frozen viral stock containing 1.0 x 10^6 infectious units of virus (IFU); contains an shRNA construct encoding a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor myosin regulatory light chain 2 gene expression knockdown using RT-PCR Primer: MYL2 (h)-PR: sc-45414-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

BIOSAFETY

Lentiviral particles can be employed in standard Biosafety Level 2 tissue culture facilities (and should be treated with the same level of caution as with any other potentially infectious reagent). Lentiviral particles are replication-incompetent and are designed to self-inactivate after transduction and integration of shRNA constructs into genomic DNA of target cells.

RESEARCH USE

The purchase of this product conveys to the buyer the nontransferable right to use the purchased amount of the product and all replicates and derivatives for research purposes conducted by the buyer in his laboratory only (whether the buyer is an academic or for-profit entity). The buyer cannot sell or otherwise transfer (a) this product (b) its components or (c) materials made using this product or its components to a third party, or otherwise use this product or its components or materials made using this product or its components for Commercial Purposes.

PROTOCOLS

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