SANTA CRUZ BIOTECHNOLOGY, INC.

Sarcalumenin siRNA (m): sc-63354

BACKGROUND

Muscle contraction is activated by the release of calcium from the sarcoplasmic reticulum (SR), and muscle relaxation is triggered by a rapid re-uptake of calcium from the cytosol into the lumen of the SR. Sarcalumenin is a glycoprotein expressed in the longitudinal tubules in the lumen of the sarcoplasmic reticulum (SR) in striated muscle cells, and it associates with the inner side of the SR membranes through calcium bridges. Endogenous casein kinase II may regulate its function via phosphorylation of Sarcalumenin. Sarcalumenin binds to calcium and helps to sequester it in the nonjunctional regions of the sarcoplasmic reticulum. Sarcalumenin also improves upon the condition of calcium pump proteins. Basic mammalian muscle functions do not require a functional Sarcalumenin, but loss of this protein causes slowed contraction and relaxation.

REFERENCES

1. Leberer, E., et al. 1990. Purification, calcium binding properties and ultrastructural localization of the 53- and 160 (Sarcalumenin)-kDa glycoproteins of the sarcoplasmic reticulum. J. Biol. Chem. 265: 10118-10124.
2. Hadad, N., et al. 1999. Cardiac Sarcalumenin: phosphorylation, comparison with the skeletal muscle Sarcalumenin and modulation of ryanodine receptor. J. Membr. Biol. 170: 39-49.
3. McDaniel, J.P., et al. 1999. Expression and characterisation of a *Plasmodium falciparum* protein containing domains homologous to Sarcalumenin and a tyrosine kinase substrate, eps15. Int. J. Parasitol. 29: 723-730.
4. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 604992. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
5. Dowling, P., et al. 2004. Drastic reduction of Sarcalumenin in Dp427 (dystrophin of 427 kDa)-deficient fibres indicates that abnormal calcium handling plays a key role in muscular dystrophy. Biochem. J. 379: 479-488.
6. Lohan, J. and Ohlendieck, K. 2004. Drastic reduction in the luminal Ca^{2+}-binding proteins calsequestrin and Sarcalumenin in dystrophin-deficient cardiac muscle. Biochim. Biophys. Acta 1689: 252-258.

CHROMOSOMAL LOCATION

Genetic locus: Srl (mouse) mapping to 16 A1.

PRODUCT

Sarcalumenin 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 Sarcalumenin shRNA Plasmid (m): sc-63354-SH and Sarcalumenin shRNA (m) Lentiviral Particles: sc-63354-V as alternate gene silencing products.

For independent verification of Sarcalumenin (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-63354A, sc-63354B and sc-63354C.

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

Sarcalumenin siRNA (m) is recommended for the inhibition of Sarcalumenin 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.

GENE EXPRESSION MONITORING

Sarcalumenin (XIIC4): sc-58845 is recommended as a control antibody for monitoring of Sarcalumenin 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).

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. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Sarcalumenin gene expression knockdown using RT-PCR Primer: Sarcalumenin (m)-PR: sc-63354-PR (20 µl). 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.

PROTOCOLS

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