SANTA CRUZ BIOTECHNOLOGY, INC.

SLN siRNA (m): sc-45594

BACKGROUND

Sarcolipin (SLN) is a 31 amino acid integral membrane protein belonging to the sarcolipin family. The gene encoding for the protein maps to chromosome 11q22.3. SLN, localizing to the sarcoplasmic reticulum, regulates Ca-ATPase activity in skeletal muscle. It associates with calcium ATPase SERCA1 (Sarco(endo)plasmic reticulum Ca^{2+}-ATPases). In muscle tissue, SERCAs are regulated by sarcolipin and another membrane protein, phospholamban (PLN). SLN is expressed in high levels in fast-twitch muscle, which has high expression of SERCA1a, and in lower levels in cardiac muscle. In rats, however, expression of SLN is higher in cardiac muscle than in fast-twitch muscle.

REFERENCES

1. Odermatt, A., et al. 1997. Characterization of the gene encoding human sarcolipin (SLN), a proteolipid associated with SERCA1: absence of structural mutations in five patients with Brody disease. Genomics 45: 541-553.
2. Odermatt, A., et al. 1998. Sarcolipin regulates the activity of SERCA1, the fast-twitch skeletal muscle sarcoplasmic reticulum Ca^{2+}-ATPase. J. Biol. Chem. 273: 12360-12369.
3. Asahi, M., et al. 2002. Sarcolipin inhibits polymerization of phospholamban to induce superinhibition of sarco(endo)plasmic reticulum Ca^{2+}-ATPases (SERCAs). J. Biol. Chem. 277: 26725-26728.
4. Mascioni, A., et al. 2002. Structure and orientation of sarcolipin in lipid environments. Biochemistry 41: 475-482.
5. Asahi, M., et al. 2003. Sarcolipin regulates sarco(endo)plasmic reticulum Ca^{2+}-ATPase (SERCA) by binding to transmembrane helices alone or in association with phospholamban. Proc. Natl. Acad. Sci. USA 100: 5040-5045.
6. Babu, G.J., et al. 2005. Overexpression of sarcolipin decreases myocyte contractility and calcium transient. Cardiovasc. Res. 65: 177-186.

CHROMOSOMAL LOCATION

Genetic locus: Sln (mouse) mapping to 9 A5.3.

PRODUCT

SLN 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 SLN shRNA Plasmid (m): sc-45594-SH and SLN shRNA (m) Lentiviral Particles: sc-45594-V as alternate gene silencing products.

For independent verification of SLN (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-45594A, sc-45594B and sc-45594C.

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

SLN siRNA (m) is recommended for the inhibition of SLN 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 SLN gene expression knockdown using RT-PCR Primer: SLN (m)-PR: sc-45594-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.