

L-type Ca⁺⁺ CP γ 1 siRNA (h): sc-93870

BACKGROUND

Voltage-dependent calcium channels are essential for the release of neurotransmitters. L-type (long lasting current) voltage-dependent calcium channels are composed of four subunits: an α 1 subunit, a β subunit, a γ subunit and an α 2 δ subunit. The β subunit is encoded by four genes, designated β 1- β 4, all of which contribute to the diversity of calcium currents and are involved in membrane trafficking of the α 1 subunit. L-type Ca⁺⁺ CP γ 1, also known as CACNLG or CACNG1, is a 222 amino acid multi-pass membrane protein belonging to the PMP-22/EMP/MP20 family. Expressed in skeletal muscle, L-type Ca⁺⁺ CP γ 1 is a subunit of the dihydropyridine (DHP) sensitive calcium channel and may play a role in excitation-contraction coupling. L-type Ca⁺⁺ CP γ 1 is considered a novel marker for malignant hyperthermia susceptibility (MHS), an autosomal dominant disorder of skeletal muscle which manifests as a life-threatening hypermetabolic crisis triggered by commonly used inhalation anaesthetics and depolarizing muscle relaxants.

REFERENCES

1. Iles, D.E., et al. 1993. Localization of the γ -subunit of the skeletal muscle L-type voltage-dependent calcium channel gene (CACNLG) to human chromosome band 17q24 by *in situ* hybridization and identification of a polymorphic repetitive DNA sequence at the gene locus. *Cytogenet. Cell Genet.* 64: 227-230.
2. Iles, D.E., et al. 1993. Genetic mapping of the β 1- and γ -subunits of the human skeletal muscle L-type voltage-dependent calcium channel on chromosome 17q and exclusion as candidate genes for malignant hyperthermia susceptibility. *Hum. Mol. Genet.* 2: 863-868.
3. Powers, P.A., et al. 1993. Molecular characterization of the gene encoding the γ subunit of the human skeletal muscle 1,4-dihydropyridine-sensitive Ca²⁺ channel (CACNLG), cDNA sequence, gene structure, and chromosomal location. *J. Biol. Chem.* 268: 9275-9279.
4. Wagner, T., et al. 1997. A somatic cell hybrid panel for distal 17q: GDIA1 maps to 17q25.3. *Cytogenet. Cell Genet.* 76: 172-175.
5. Randall, A.D. 1998. The molecular basis of voltage-gated Ca²⁺ channel diversity: is it time for T? *J. Membr. Biol.* 161: 207-213.
6. Catterall, W.A. 2000. Structure and regulation of voltage-gated Ca²⁺ channels. *Annu. Rev. Cell Dev. Biol.* 16: 521-555.

CHROMOSOMAL LOCATION

Genetic locus: CACNG1 (human) mapping to 17q24.2.

PRODUCT

L-type Ca⁺⁺ CP γ 1 siRNA (h) is a pool of 2 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see L-type Ca⁺⁺ CP γ 1 shRNA Plasmid (h): sc-93870-SH and L-type Ca⁺⁺ CP γ 1 shRNA (h) Lentiviral Particles: sc-93870-V as alternate gene silencing products.

For independent verification of L-type Ca⁺⁺ CP γ 1 (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-93870A and sc-93870B.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

L-type Ca⁺⁺ CP γ 1 siRNA (h) is recommended for the inhibition of L-type Ca⁺⁺ CP γ 1 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 μ M in 66 μ l. 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 L-type Ca⁺⁺ CP γ 1 gene expression knockdown using RT-PCR Primer: L-type Ca⁺⁺ CP γ 1 (h)-PR: sc-93870-PR (20 μ l). 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.