

L-type Ca⁺⁺ CP α 1S siRNA (m): sc-35773

BACKGROUND

Voltage-dependent Ca²⁺ channels mediate Ca²⁺ entry into excitable cells in response to membrane depolarization, and they are involved in a variety of Ca²⁺-dependent processes, including muscle contraction, hormone or neurotransmitter release and gene expression. Calcium channels are highly diverse, multimeric complexes composed of an α -1 subunit, an intracellular β -subunit, a disulfide linked α -2/ δ subunit and a transmembrane γ -subunit. Ca²⁺ currents are characterized on the basis of their biophysical and pharmacologic properties and include L-, N-, T-, P-, Q-, and R- types. L-type Ca²⁺ currents initiate muscle contraction, endocrine secretion, and gene transcription, and can be regulated through second-messenger activated protein phosphorylation pathways. L-type calcium channels may form macromolecular signaling complexes with G protein-coupled receptors, thereby enhancing the selectivity of regulating specific targets. Calcium channels containing the α -1S subunit play an important role in excitation-contraction coupling in skeletal muscle.

REFERENCES

- Gregg, R.G., et al. 1993. Assignment of the human gene for the α 1 subunit of the skeletal muscle DHP-sensitive Ca²⁺ channel (CACNL1A3) to chromosome 1q31-q32. *Genomics* 15: 107-112.
- Perez-Reyes, E. and Schneider, T. 1995. Molecular biology of calcium channels. *Kidney Int.* 48: 1111-1124.
- Randall, A.D. 1998. The molecular basis of voltage-gated Ca²⁺ channel diversity: is it time for T? *J. Membr. Biol.* 161: 207-213.
- Catterall, W.A. 2000. Structure and regulation of voltage-gated Ca²⁺ channels. *Annu. Rev. Cell Dev. Biol.* 16: 521-555.

CHROMOSOMAL LOCATION

Genetic locus: Cacna1s (mouse) mapping to 1 E4.

PRODUCT

L-type Ca⁺⁺ CP α 1S 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see L-type Ca⁺⁺ CP α 1S shRNA Plasmid (m): sc-35773-SH and L-type Ca⁺⁺ CP α 1S shRNA (m) Lentiviral Particles: sc-35773-V as alternate gene silencing products.

For independent verification of L-type Ca⁺⁺ CP α 1S (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-35773A, sc-35773B and sc-35773C.

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 α 1S siRNA (m) is recommended for the inhibition of L-type Ca⁺⁺ CP α 1S 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 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.

GENE EXPRESSION MONITORING

L-type Ca⁺⁺ CP α 1S (G-1): sc-514685 is recommended as a control antibody for monitoring of L-type Ca⁺⁺ CP α 1S 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 L-type Ca⁺⁺ CP α 1S gene expression knockdown using RT-PCR Primer: L-type Ca⁺⁺ CP α 1S (m)-PR: sc-35773-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

- Antony, C., et al. 2015. Regulation of L-type voltage gated calcium channel CACNA1S in macrophages upon *Mycobacterium tuberculosis* infection. *PLoS ONE* 10: e0124263.

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.