



R-type Ca^{++} CP $\alpha 1\text{E}$ siRNA (m): sc-42703

BACKGROUND

Voltage-dependent Ca^{2+} channels mediate Ca^{2+} entry into excitable cells in response to membrane depolarization, and they are involved in a variety of Ca^{2+} -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. Ca^{2+} currents are characterized on the basis of their biophysical and pharmacologic properties and include L-, N-, T-, P-, Q- and R- types. R-type Ca^{2+} currents initiate a rapid synaptic transmission that is regulated through G proteins, SNARE proteins, and protein phosphorylation. R-type Ca^{2+} channels may partially regulate the secretory process in chromaffin cells by mediating rapid secretory responses evoked by short depolarizing pulses.

REFERENCES

1. Perez-Reyes, E. and Schneider, T. 1995. Molecular biology of calcium channels. *Kidney Int.* 48: 1111-1124.
2. Randall, A.D. 1998. The molecular basis of voltage-gated Ca^{2+} channel diversity: is it time for T? *J. Membr. Biol.* 161: 207-213.
3. Catterall, W.A. 2000. Structure and regulation of voltage-gated Ca^{2+} channels. *Annu. Rev. Cell Dev. Biol.* 16: 521-555.
4. Albillos, A., Neher, E. and Moser, T. 2000. R-type Ca^{2+} channels are coupled to the rapid component of secretion in mouse adrenal slice chromaffin cells. *J. Neurosci.* 20: 8323-8330.

CHROMOSOMAL LOCATION

Genetic locus: *Cacna1e* (mouse) mapping to 1 G3.

PRODUCT

R-type Ca^{++} CP $\alpha 1\text{E}$ 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 R-type Ca^{++} CP $\alpha 1\text{E}$ shRNA Plasmid (m): sc-42703-SH and R-type Ca^{++} CP $\alpha 1\text{E}$ shRNA (m) Lentiviral Particles: sc-42703-V as alternate gene silencing products.

For independent verification of R-type Ca^{++} CP $\alpha 1\text{E}$ (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-42703A, sc-42703B and sc-42703C.

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

R-type Ca^{++} CP $\alpha 1\text{E}$ siRNA (m) is recommended for the inhibition of R-type Ca^{++} CP $\alpha 1\text{E}$ 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 R-type Ca^{++} CP $\alpha 1\text{E}$ gene expression knockdown using RT-PCR Primer: R-type Ca^{++} CP $\alpha 1\text{E}$ (m)-PR: sc-42703-PR (20 μl , 439 bp). Annealing temperature for the primers should be $55-60^{\circ}\text{C}$ and the extension temperature should be $68-72^{\circ}\text{C}$.

SELECT PRODUCT CITATIONS

1. Lin, J.J., Lin, Y., Zhao, T.Z., Zhang, C.K., Zhang, T., Chen, X.L., Ding, J.Q., Chang, T., Zhang, Z., Sun, C., Zhao, D.D., Zhu, J.L., Li, Z.Y. and Li, J.L. 2017. Melatonin suppresses neuropathic pain via MT2-dependent and -independent pathways in dorsal root ganglia neurons of mice. *Theranostics* 7: 2015-2032.

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.