SANTA CRUZ BIOTECHNOLOGY, INC.

T-type Ca^{++} CP α1G siRNA (r): sc-61869

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. T-type Ca^{2+} currents are activated and inactivated more rapidly and at more negative membrane potentials than other Ca^{2+} current types. T-type Ca^{2+} channels enhance odor sensitivity by lowering the threshold of spike generation in olfactory receptor cells (ORCs).

REFERENCES

1. Perez-Reyes, E., et al 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: 521-525.
4. Kawai, F., et al. 2001. Enhancement by T-type Ca^{2+} currents of odor sensitivity in olfactory receptor cells. J. Neurosci. 21: 44.
5. Online Mendelian Inheritance in Man, OMIM™. 2001. Johns Hopkins University, Baltimore, MD. MIM Number: 601011. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
6. Wappl, E., et al. 2002. Functional consequences of P/Q-type Ca^{2+} channel $Ca_V2.1$ missense mutations associated with episodic ataxia type 2 and progressive ataxia. J. Biol. Chem. 277: 6960-6966.
7. Chaudhuri, D., et al. 2004. Alternative splicing as a molecular switch for Ca^{2+}/calmodulin-dependent facilitation of P/Q-type Ca^{2+} channels. J. Neurosci. 24: 6334-6342.

CHROMOSOMAL LOCATION

Genetic locus: Cacna1g (rat) mapping to 10q26.

PRODUCT

T-type Ca^{++} CP α1G siRNA (r) 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 T-type Ca^{++} CP α1G shRNA Plasmid (r): sc-61869-SH and T-type Ca^{++} CP α1G shRNA (r) Lentiviral Particles: sc-61869-V as alternate gene silencing products.

For independent verification of T-type Ca^{++} CP α1G (r) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-61869A, sc-61869B and sc-61869C.

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

T-type Ca^{++} CP α1G siRNA (r) is recommended for the inhibition of T-type Ca^{++} CP α1G expression in rat 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 T-type Ca^{++} CP α1G gene expression knockdown using RT-PCR Primer: T-type Ca^{++} CP α1G (r)-PR: sc-61869-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Gouriou, Y., et al. 2013. Mitochondrial Ca^{2+} uptake from plasma membrane $Ca_V3.2$ protein channels contributes to ischemic toxicity in PC12 cells. J. Biol. Chem. 288: 12459-12468.

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.