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T-type Ca⁺⁺ CP α 1H siRNA (h): sc-42706

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. T-type Ca²⁺ currents are activated and inactivated more rapidly and at more negative membrane potentials than other Ca²⁺ current types. T-type Ca²⁺ channels enhance odor sensitivity by lowering the threshold of spike generation in olfactory receptor cells (ORCs).

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 Ca²⁺ channel diversity: is it time for T. *J. Membr. Biol.* 161: 207-213.
3. Catterall, W.A. 2000. Structure and regulation of voltage-gated Ca²⁺ channels. *Annu. Rev. Cell Dev. Biol.* 16: 521-525.
4. Kawai, F. and Miyachi, E. 2001. Enhancement by T-type Ca²⁺ currents of odor sensitivity in olfactory receptor cells. *J. Neurosci.* 21: 44.

CHROMOSOMAL LOCATION

Genetic locus: CACNA1H (human) mapping to 16p13.3.

PRODUCT

T-type Ca⁺⁺ CP α 1H siRNA (h) 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 T-type Ca⁺⁺ CP α 1H shRNA Plasmid (h): sc-42706-SH and T-type Ca⁺⁺ CP α 1H shRNA (h) Lentiviral Particles: sc-42706-V as alternate gene silencing products.

For independent verification of T-type Ca⁺⁺ CP α 1H (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-42706A, sc-42706B and sc-42706C.

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

T-type Ca⁺⁺ CP α 1H siRNA (h) is recommended for the inhibition of T-type Ca⁺⁺ CP α 1H 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.

GENE EXPRESSION MONITORING

T-type Ca⁺⁺ CP α 1H (G-10): sc-377510 is recommended as a control antibody for monitoring of T-type Ca⁺⁺ CP α 1H 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 T-type Ca⁺⁺ CP α 1H gene expression knockdown using RT-PCR Primer: T-type Ca⁺⁺ CP α 1H (h)-PR: sc-42706-PR (20 μ l, 536 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Marchetti, C., Ribulla, S., Magnelli, V., Patrone, M. and Burlando, B. 2016. Resveratrol induces intracellular Ca²⁺ rise via T-type Ca²⁺ channels in a mesothelioma cell line. *Life Sci.* 148: 125-131.

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.