

LTRPC7 siRNA (m): sc-42663

BACKGROUND

Transient receptor potential (TRPC) ion channels are a super-family of six transmembrane segment-spanning, gated cation channels. TRPC subtypes mediate store-operated Ca^{2+} entry, a process involving Ca^{2+} influx and replenishment of Ca^{2+} stores formerly emptied through the action of inositol 1,4,5-trisphosphate production and other Ca^{2+} mobilizing agents. Trp ion channels influence calcium-depletion-induced calcium influx processes in response to chemo-, mechano- and osmo-regulatory events. LTRPC7 and LTRPC2 (TRPC7) are both members of the long TRPC subfamily, which is characterized by open reading frames of around 1600 amino-acid residues. LTRPC7 is another divalent cation channel for Ca^{2+} and Mg^{2+} .

REFERENCES

- Harteneck, C., et al. 2000. From worm to man: three subfamilies of TRP channels. *Trends Neurosci.* 23: 159-166.
- Philipp, S., et al. 1998. A novel capacitative calcium entry channel expressed in excitable cells. *EMBO J.* 17: 4274-4282.
- Hofmann, T., et al. 2000. Transient receptor potential channels as molecular substrates of receptor-mediated cation entry. *J. Mol. Med.* 78: 14-25.
- Nagamine, K., et al. 1998. Molecular cloning of a novel putative Ca^{2+} channel protein (TRPC7) highly expressed in brain. *Genomics* 54: 124-131.
- Nadler, M.J., et al. 2001. LTRPC7 is a Mg.ATP-regulated divalent cation channel required for cell viability. *Nature* 411: 590-595.
- Perraud, A.L., et al. 2001. ADP-ribose gating of the calcium-permeable LTRPC2 channel revealed by Nudix motif homology. *Nature* 411: 595-599.

CHROMOSOMAL LOCATION

Genetic locus: Trpm7 (mouse) mapping to 2 F1.

PRODUCT

LTRPC7 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 LTRPC7 shRNA Plasmid (m): sc-42663-SH and LTRPC7 shRNA (m) Lentiviral Particles: sc-42663-V as alternate gene silencing products.

For independent verification of LTRPC7 (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-42663A, sc-42663B and sc-42663C.

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

LTRPC7 siRNA (m) is recommended for the inhibition of LTRPC7 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.

GENE EXPRESSION MONITORING

LTRPC7 (H-4): sc-271099 is recommended as a control antibody for monitoring of LTRPC7 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 LTRPC7 gene expression knockdown using RT-PCR Primer: LTRPC7 (m)-PR: sc-42663-PR (20 μl). 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

- Xu, H.L., et al. 2018. Suppression of cortical TRPM7 protein attenuates oxidative damage after traumatic brain injury via Akt/endothelial nitric oxide synthase pathway. *Neurochem. Int.* 112: 197-205.

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.