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SANTA CRUZ BIOTECHNOLOGY, INC.

LTRPC7 siRNA (h): sc-42662

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 1,600 amino-acid residues. LTRPC7 is another divalent cation channel for Ca^{2+} and Mg^{2+}.

CHROMOSOMAL LOCATION

Genetic locus: TRPM7 (human) mapping to 15q21.2.

PRODUCT

LTRPC7 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see LTRPC7 shRNA Plasmid (h): sc-42662-SH and LTRPC7 shRNA (h) Lentiviral Particles: sc-42662-V as alternate gene silencing products.

For independent verification of LTRPC7 (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-42662A, sc-42662B and sc-42662C.

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 (h) is recommended for the inhibition of LTRPC7 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 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 (h)-PR: sc-42662-PR (20 µl, 484 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Yee, N.S., et al. 2011. Transient receptor potential ion channel Trpm7 regulates exocrine pancreatic epithelial proliferation by Mg^{2+}-sensitive Socs3a signaling in development and cancer. Dis. Model. Mech. 4: 240-254.
2. Yee, N.S., et al. 2012. Targeted silencing of TRPM7 ion channel induces replicative senescence and produces enhanced cytotoxicity with gemcitabine in pancreatic adenocarcinoma. Cancer Lett. 318: 99-105.
3. Song, S., et al. 2014. Flow shear stress enhances intracellular Ca^{2+} signaling in pulmonary artery smooth muscle cells from patients with pulmonary arterial hypertension. Am. J. Physiol., Cell Physiol. 307: C373-C383.
4. Lange, I. and Koomoa, D.L. 2014. MycN promotes TRPM7 expression and cell migration in neuroblastoma through a process that involves polyamines. FEBS Open Bio 4: 966-975.
5. Zhang, X., et al. 2017. Ion channel functional protein kinase TRPM7 regulates Mg ions to promote the osteoinduction of human osteoblast via PI3K pathway: *in vitro* simulation of the bone-repairing effect of Mg-based alloy implant. Acta Biomater. 63: 369-382.
6. Zhu, D., et al. 2018. Magnesium reduces blood-brain barrier permeability and regulates amyloid-β transcytosis. Mol. Neurobiol. 55: 7118-7131.

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.