SANTA CRUZ BIOTECHNOLOGY, INC.

TRPC1 siRNA (h): sc-42664

BACKGROUND

Transient receptor potential cation (TRPC) channels are a superfamily 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. TRPC ion channels influence calcium-depletion induced calcium influx processes in response to chemo-, mechano- and osmoregulatory events. Human TRPC1 protein is a 793 amino acid cation channel that is expressed in fetal and adult brain, and adult heart, testis and ovary, where it may influence store-operated Ca^{2+} entry as a component of capacitative calcium entry (CCE) complexes. The activation of store-mediated Ca^{2+} entry in human cells occurs through the association between inositol 1,4,5-trisphosphate receptors and TRPC1.

CHROMOSOMAL LOCATION

Genetic locus: TRPC1 (human) mapping to 3q23.

PRODUCT

TRPC1 siRNA (h) is a target-specific 19-25 nt siRNA 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 TRPC1 shRNA Plasmid (h): sc-42664-SH and TRPC1 shRNA (h) Lentiviral Particles: sc-42664-V as alternate gene silencing products.

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

TRPC1 siRNA (h) is recommended for the inhibition of TRPC1 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.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

GENE EXPRESSION MONITORING

TRPC1 (E-6): sc-133076 is recommended as a control antibody for monitoring of TRPC1 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor TRPC1 gene expression knockdown using RT-PCR Primer: TRPC1 (h)-PR: sc-42664-PR (20 µl, 491 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Bair, A.M., et al. 2009. Ca^{2+} entry via TRPC channels is necessary for thrombin-induced NFκB activation in endothelial cells through AMP-activated protein kinase and protein kinase Cδ. J. Biol. Chem. 284: 563-574.
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3. Sobradillo, D., et al. 2014. A reciprocal shift in transient receptor potential channel 1 (TRPC1) and stromal interaction molecule 2 (STIM2) contributes to Ca^{2+} remodeling and cancer hallmarks in colorectal carcinoma cells. J. Biol. Chem. 289: 28765-28782.
4. Bertrand, J., et al. 2015. A functional tandem between transient receptor potential canonical channels 6 and calcium-dependent chloride channels in human epithelial cells. Eur. J. Pharmacol. 765: 337-345.
5. Bodiga, V.L., et al. 2016. Intracellular zinc status influences cisplatin-induced endothelial permeability through modulation of PKCα, NFκB and ICAM-1 expression. Eur. J. Pharmacol. 791: 355-368.
6. Guéguinou, M., et al. 2016. SK3/TRPC1/Orai1 complex regulates SOCE-dependent colon cancer cell migration: a novel opportunity to modulate anti-EGFR mAb action by the alkyl-lipid Ohmline. Oncotarget 7: 36168-36184.
7. Li, G., et al. 2018. Bradykinin-mediated Ca^{2+} signalling regulates cell growth and mobility in human cardiac c-Kit^{+} progenitor cells. J. Cell. Mol. Med. 22: 4688-4699.
8. He, D., et al. 2020. TRPC1 participates in the HSV-1 infection process by facilitating viral entry. Sci. Adv. 6: eaaz3367.
9. Hsu, W.L., et al. 2020. Nociceptive transient receptor potential canonical 7 (TRPC7) mediates aging-associated tumorigenesis induced by ultraviolet B. Aging Cell 19: e13075.
10. Elzamzamy, O.M., et al. 2021. Transient receptor potential C 1/4/5 is a determinant of MTI-101 induced calcium influx and cell death in multiple myeloma. Cells 10: 1490.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.