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SANTA CRUZ BIOTECHNOLOGY, INC.

TRPC6 siRNA (m): sc-42673

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 TRPC6 protein is a 931 amino acid cation channel that is predominantly expressed in placenta, spleen, lung, small intestine and ovary. Activated by diacylglycerol (DAG), TRPC6 comprises the α_1-adrenoceptor-activated Ca^{2+}-permeable cation channel. The gene encoding human TRPC6 maps to chromosome 11q22.1.

CHROMOSOMAL LOCATION

Genetic locus: Trpc6 (mouse) mapping to 9 A1.

PRODUCT

TRPC6 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 TRPC6 shRNA Plasmid (m): sc-42673-SH and TRPC6 shRNA (m) Lentiviral Particles: sc-42673-V as alternate gene silencing products.

For independent verification of TRPC6 (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-42673A, sc-42673B and sc-42673C.

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

TRPC6 siRNA (m) is recommended for the inhibition of TRPC6 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

TRPC6 (B-10): sc-515837 is recommended as a control antibody for monitoring of TRPC6 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 TRPC6 gene expression knockdown using RT-PCR Primer: TRPC6 (m)-PR: sc-42673-PR (20 µl, 586 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Wu, G., et al. 2007. Induction of calcium influx through TRPC5 channels by cross-linking of GM1 ganglioside associated with α5β1 integrin initiates neurite outgrowth. J. Neurosci. 27: 7447-7458.
2. Zhang, H.T., et al. 2016. The mTORC2/Akt/NFκB pathway-mediated activation of TRPC6 participates in adriamycin-induced podocyte apoptosis. Cell. Physiol. Biochem. 40: 1079-1093.
3. Roshanravan, H., et al. 2016. 20-hydroxyeicosatetraenoic acid (20-HETE) modulates canonical transient receptor potential-6 (TRPC6) channels in podocytes. Front. Physiol. 7: 351.
4. Chen, C., et al. 2017. Critical role of TRPC1 in thyroid hormone-dependent dopaminergic neuron development. Biochim. Biophys. Acta Mol. Cell Res. 1864: 1900-1912.
5. Kim, J.H., et al. 2017. Klotho may ameliorate proteinuria by targeting TRPC6 channels in podocytes. J. Am. Soc. Nephrol. 28: 140-151.
6. Yang, L.L., et al. 2017. Inhibition of TRPC6 reduces non-small cell lung cancer cell proliferation and invasion. Oncotarget 8: 5123-5134.
7. Kang, J.S., et al. 2019. Angiotensin II-mediated MYH9 downregulation causes structural and functional podocyte injury in diabetic kidney disease. Sci. Rep. 9: 7679.

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.