SANTA CRUZ BIOTECHNOLOGY, INC.

TRPM8 siRNA (h): sc-95009

BACKGROUND

Transient receptor potential ion channels (TRPC) are a superfamily of six transmembrane segment-spanning gated cation channels. TRP 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. TRPM8 (transient receptor potential cation channel, subfamily M, member 8), also known as TRPP8 or LTRPC6, is a 1,104 amino acid multi-pass membrane protein that belongs to the TRP family of regulatory channel proteins. Expressed at high levels in prostate, TRPM8 functions as a receptor-activated cation channel that is permeable to monovalent cations (such as sodium and potassium) and divalent Ca^{2+} and is involved in the detection of temperature sensations (such as the feeling of coolness) throughout the body. TRPM8 is overexpressed in prostate tumors, as well as in colon, breast and lung cancers, suggesting an important role for TRPM8 in tumorigenesis.

REFERENCES

1. Tsavaler, L., et al. 2001. TRPP8, a novel prostate-specific gene, is upregulated in prostate cancer and other malignancies and shares high homology with transient receptor potential calcium channel proteins. Cancer Res. 61: 3760-3769.
2. de la Peña, E., et al. 2005. The contribution of TRPM8 channels to cold sensing in mammalian neurones. J. Physiol. 567: 415-426.
3. Erler, I., et al. 2006. Trafficking and assembly of the cold-sensitive TRPM8 channel. J. Biol. Chem. 281: 38396-38404.

CHROMOSOMAL LOCATION

Genetic locus: TRPM8 (human) mapping to 2q37.1.

PRODUCT

TRPM8 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 TRPM8 shRNA Plasmid (h): sc-95009-SH and TRPM8 shRNA (h) Lentiviral Particles: sc-95009-V as alternate gene silencing products.

For independent verification of TRPM8 (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-95009A, sc-95009B and sc-95009C.

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

TRPM8 siRNA (h) is recommended for the inhibition of TRPM8 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor TRPM8 gene expression knockdown using RT-PCR Primer: TRPM8 (h)-PR: sc-95009-PR (20 µl, 487 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. 2010. Transient receptor potential channel TRPM8 is over-expressed and required for cellular proliferation in pancreatic adenocarcinoma. Cancer Lett. 297: 49-55.
2. Cucu, D., et al. 2014. Characterization of functional transient receptor potential melastatin 8 channels in human pancreatic ductal adenocarcinoma cells. Pancreas 43: 795-800.
3. Ulareanu, R., et al. 2017. N-glycosylation of the transient receptor potential melastatin 8 channel is altered in pancreatic cancer cells. Tumour Biol. 39: 1010428317720940.
4. Taylor, D.J.R., et al. 2020. Antiviral effects of menthol on coxsackievirus B. Viruses 12: 373.
5. Mao, L.P., et al. 2021. Cold-inducible RNA-binding protein migrates from the nucleus to the cytoplasm under cold stress in normal human bronchial epithelial cells via TRPM8-mediated mechanism. Ann. Transl. Med. 9: 1470.
6. Fujino, T. 2022. Transient receptor potential melastatin 8, a sensor of cold temperatures mediates expression of cyclin-dependent kinase inhibitor, p21/Cip1, a regulator of epidermal cell proliferation. J. Toxicol. Sci. 47: 117-123.

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.