



TRPM4 siRNA (m): sc-45440

BACKGROUND

Transient receptor potential ion channels (TRPCs) 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. TRP ion channels influence calcium-depletion induced calcium influx processes in response to chemo-, mechano- and osmoregulatory events. TRPM4 is a transient receptor potential channel with an intrinsic voltage-sensing mechanism. Voltage dependence of TRPM4 may be functionally important, especially in excitable tissues generating plateau-like or bursting action potentials. TRPM4-mediated depolarization modulates Ca^{2+} oscillations, with downstream effects on cytokine production in T lymphocytes.

REFERENCES

1. Hoth, M., et al. 1997. Mitochondrial regulation of store-operated calcium signaling in T lymphocytes. *J. Cell Biol.* 137: 633-648.
2. Plant, T.D., et al. 2003. TRPC4 and TRPC5: receptor-operated Ca^{2+} -permeable nonselective cation channels. *Cell Calcium* 33: 441-450.
3. Nilius, B., et al. 2003. Voltage dependence of the Ca^{2+} -activated cation channel TRPM4. *J. Biol. Chem.* 278: 30813-30820.
4. Launay, P., et al. 2004. TRPM4 regulates calcium oscillations after T cell activation. *Science* 306: 1374-1377.

CHROMOSOMAL LOCATION

Genetic locus: *Trpm4* (mouse) mapping to 7 B4.

PRODUCT

TRPM4 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 TRPM4 shRNA Plasmid (m): sc-45440-SH and TRPM4 shRNA (m) Lentiviral Particles: sc-45440-V as alternate gene silencing products.

For independent verification of TRPM4 (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-45440A, sc-45440B and sc-45440C.

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.

RESEARCH USE

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

APPLICATIONS

TRPM4 siRNA (m) is recommended for the inhibition of TRPM4 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor TRPM4 gene expression knockdown using RT-PCR Primer: TRPM4 (m)-PR: sc-45440-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

1. Woo, S.K., et al. 2013. Complex N-glycosylation stabilizes surface expression of transient receptor potential melastatin 4b protein. *J. Biol. Chem.* 288: 36409-36417.
2. Gerzanich, V., et al. 2018. SUR1-TRPM4 channel activation and phasic secretion of MMP-9 induced by tPA in brain endothelial cells. *PLoS ONE* 13: e0195526.

PROTOCOLS

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