

VRL-1 siRNA (m): sc-42679

BACKGROUND

Transient receptor potential (Trp) ion channels 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 osmoregulatory events. A subset of Trp channels includes the vanilloid receptor 1 (VR1), VRL-1, and TRPM8, which are involved in temperature perception. VR1 is activated by temperatures exceeding 43° C and by Capsaicin, the main ingredient in hot chili peppers. VRL-1 is activated by extreme temperatures exceeding 52° C, and is expressed in both neuronal and nonneuronal cells. TRPM8 is stimulated by cold temperatures below 22° C as well as methanol. TRPM8 is expressed in a subpopulation of pain and temperature-sensing dorsal root ganglia (DRG) neurons.

REFERENCES

1. Philipp, S., et al. 1998. A novel capacitative calcium entry channel expressed in excitable cells. *EMBO J.* 17: 4274-4282.
2. Caterina, M.J., et al. 1999. A Capsaicin-receptor homologue with a high threshold for noxious heat. *Nature* 398: 436-441.
3. Hofmann, T., et al. 2000. Transient receptor potential channels as molecular substrates of receptor-mediated cation entry. *J. Mol. Med.* 78: 14-25.
4. Harteneck, C., et al. 2000. From worm to man: three subfamilies of Trp channels. *Trends Neurosci.* 23: 159-166.
5. McKemy, D.D., et al. 2002. Identification of a cold receptor reveals a general role for Trp channels in thermosensation. *Nature* 416: 52-58.
6. Peier, A.M., et al. 2002. A Trp channel that senses cold stimuli and menthol. *Cell* 108: 705-715.
7. Guler, A.D., et al. 2002. Heat-evoked activation of the ion channel, TRPV4. *J. Neurosci.* 22: 6408-6414.

CHROMOSOMAL LOCATION

Genetic locus: Trpv2 (mouse) mapping to 11 B2.

PRODUCT

VRL-1 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 VRL-1 shRNA Plasmid (m): sc-42679-SH and VRL-1 shRNA (m) Lentiviral Particles: sc-42679-V as alternate gene silencing products.

For independent verification of VRL-1 (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-42679A, sc-42679B and sc-42679C.

PROTOCOLS

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

VRL-1 siRNA (m) is recommended for the inhibition of VRL-1 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 VRL-1 gene expression knockdown using RT-PCR Primer: VRL-1 (m)-PR: sc-42679-PR (20 μl , 594 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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