

# TRPV3 siRNA (h): sc-44170

## BACKGROUND

Transient receptor potential (TRP) proteins are cation-sensitive channels that modulate a myriad of cellular functions, including temperature sensation and vasoregulation. Transcribed from a gene adjacent to VR-1, the thermal-sensitive, capsaicin-insensitive TRPV3 is expressed at warm temperatures; expression increases in response to noxious temperatures. Human TRPV3 is expressed in skin, tongue, dorsal root ganglion, trigeminal ganglion, spinal cord and brain. In addition, TRPV3 is co-expressed in dorsal root ganglion neurons with VR-1. TRPV3 associates with VR-1 and may modulate VR-1 activity. The 729 amino acid TRPV5 (ECAC1) protein comprises six transmembrane domains, multiple potential phosphorylation sites, an N-linked glycosylation site and three ankyrin repeat regions. It is abundantly expressed in kidney, jejunum and pancreas, and at lower levels in testis, prostate, placenta, brain, colon and rectum. TRPV5 controls the rate-limiting step of vitamin D<sub>3</sub>-regulated Ca<sup>2+</sup> reabsorption in kidney and intestine; the 5'-flanking region of TRPV5 contains four putative vitamin D<sub>3</sub>-responsive elements.

## REFERENCES

1. Muller, D., et al. 2000. Gene structure and chromosomal mapping of human epithelial calcium channel. *Biochem. Biophys. Res. Commun.* 275: 47-52.
2. Xu, H., et al. 2002. TRPV3 is a calcium-permeable temperature-sensitive cation channel. *Nature* 418: 181-186.
3. Smith, G.D., et al. 2002. TRPV3 is a temperature-sensitive vanilloid receptor-like protein. *Nature* 418: 186-190.
4. Peier, A.M., et al. 2002. A heat-sensitive TRP channel expressed in keratinocytes. *Science* 296: 2046-2049.

## CHROMOSOMAL LOCATION

Genetic locus: TRPV3 (human) mapping to 17p13.2.

## PRODUCT

TRPV3 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see TRPV3 shRNA Plasmid (h): sc-44170-SH and TRPV3 shRNA (h) Lentiviral Particles: sc-44170-V as alternate gene silencing products.

For independent verification of TRPV3 (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-44170A, sc-44170B and sc-44170C.

## 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

TRPV3 siRNA (h) is recommended for the inhibition of TRPV3 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  $\mu$ M in 66  $\mu$ l. 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 TRPV3 gene expression knockdown using RT-PCR Primer: TRPV3 (h)-PR: sc-44170-PR (20  $\mu$ l, 596 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Um, J.Y., et al. 2020. Transient receptor potential vanilloid-3 (TRPV3) channel induces dermal fibrosis via the TRPV3/TSLP/Smad2/3 pathways in dermal fibroblasts. *J. Dermatol. Sci.* 97: 117-124.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.