



# TRPC5 siRNA (h): sc-42670

## BACKGROUND

Transient receptor potential (TRP) ion channels are a superfamily of six transmembrane segment-spanning, gated cation channels. TRP subtypes mediate store-operated  $\text{Ca}^{2+}$  entry, a process involving  $\text{Ca}^{2+}$  influx and replenishment of  $\text{Ca}^{2+}$  stores formerly emptied through the action of inositol 1,4,5-trisphosphate production and other  $\text{Ca}^{2+}$  mobilizing agents. TRP ion channels influence calcium-depletion-induced calcium influx processes in response to chemo-, mechano- and osmoregulatory events. Human TRP1 protein is a 793 amino acid cation channel that is expressed in fetal and adult brain and in adult heart, testis and ovary, where it may influence store-operated  $\text{Ca}^{2+}$  entry as a component of capacitative calcium entry (CCE) complexes. The brain-specific subunit TRP5 forms a nonselective cation channel with TRP1 in the hippocampus that is activated by  $\text{G}_q$ -coupled receptors, but not by depletion of intracellular  $\text{Ca}^{2+}$  stores. The gene encoding human TRP5 maps to chromosome Xp23, which also contains loci for nonsyndromic mental retardation and X-linked disorders.

## REFERENCES

1. Zhu, X., et al. 1995. Molecular cloning of a widely expressed human homologue for the *Drosophila* TRP gene. *FEBS Lett.* 373: 193-198.
2. Wes, P.D., et al. 1995. TRPC1, a human homolog of a *Drosophila* store-operated channel. *Proc. Natl. Acad. Sci. USA* 92: 9652-9666.

## CHROMOSOMAL LOCATION

Genetic locus: TRPC5 (human) mapping to Xq23.

## PRODUCT

TRPC5 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  $\mu\text{M}$  solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see TRPC5 shRNA Plasmid (h): sc-42670-SH and TRPC5 shRNA (h) Lentiviral Particles: sc-42670-V as alternate gene silencing products.

For independent verification of TRPC5 (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-42670A, sc-42670B and sc-42670C.

## STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at  $-20^\circ\text{C}$  with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at  $-20^\circ\text{C}$ , avoid contact with RNAses and repeated freeze thaw cycles.

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

## APPLICATIONS

TRPC5 siRNA (h) is recommended for the inhibition of TRPC5 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  $\mu\text{M}$  in 66  $\mu\text{l}$ . 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.

## GENE EXPRESSION MONITORING

TRPC5 (1C8): sc-293259 is recommended as a control antibody for monitoring of TRPC5 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-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor TRPC5 gene expression knockdown using RT-PCR Primer: TRPC5 (h)-PR: sc-42670-PR (20  $\mu\text{l}$ , 524 bp). 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. Caropreso, V., et al. 2016. Englerin A inhibits EWS-FLI1 DNA binding in ewing sarcoma cells. *J. Biol. Chem.* 291: 10058-10066.
2. Wang, T., et al. 2017. Elevated expression of TrpC5 and GLUT1 is associated with chemoresistance in colorectal cancer. *Oncol. Rep.* 37: 1059-1065.
3. Wang, T., et al. 2018. Glycolysis is essential for chemoresistance induced by transient receptor potential channel C5 in colorectal cancer. *BMC Cancer* 18: 207.
4. Hsu, W.L., et al. 2020. Nociceptive transient receptor potential canonical 7 (TRPC7) mediates aging-associated tumorigenesis induced by ultraviolet B. *Aging Cell* 19: e13075.
5. Elzamzamy, O.M., et al. 2021. Transient receptor potential C 1/4/5 is a determinant of MTI-101 induced calcium influx and cell death in multiple myeloma. *Cells* 10: 1490.
6. Vaidya, B., et al. 2023. Amelioration of Parkinson's disease by pharmacological inhibition and knockdown of redox sensitive TRPC5 channels: focus on mitochondrial health. *Life Sci.* 328: 121871.

## RESEARCH USE

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