SANTA CRUZ BIOTECHNOLOGY, INC.

TRPC3 siRNA (h): sc-42666

BACKGROUND

Transient receptor potential cation (TRPC) channels 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. TRPC channels influence calcium-depletion induced calcium influx processes in response to chemo-, mechano- and osmoregulatory events. Human TRPC3 protein, also known as TRP3, is a 848 amino acid cation channel that is predominantly expressed in brain and, at lower levels, in testis, ovaries, colon, prostate, small intestine, placenta and lung. The activation of store-mediated Ca^{2+} entry in human cells likely occurs through the association between IP3R (inositol 1,4,5-trisphosphate receptors) and TRPC3. TRPC3 activity is also activated by DAG (diacylglycerol) independently of PKC (protein kinase C).

REFERENCES

1. Zhu, X., et al. 1995. Molecular cloning of a widely expressed human homologue for the *Drosophila* TRP gene. FEBS Lett. 373: 193-218.
2. Zitt, C., et al 1996. Cloning and functional expression of a human Ca^{2+}-permeable cation channel activated by calcium store depletion. Neuron 16: 1189-1196.

CHROMOSOMAL LOCATION

Genetic locus: TRPC3 (human) mapping to 4q27.

PRODUCT

TRPC3 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 TRPC3 shRNA Plasmid (h): sc-42666-SH and TRPC3 shRNA (h) Lentiviral Particles: sc-42666-V as alternate gene silencing products.

For independent verification of TRPC3 (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-42666A, sc-42666B and sc-42666C.

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

TRPC3 siRNA (h) is recommended for the inhibition of TRPC3 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.

GENE EXPRESSION MONITORING

TRPC3 (C-5): sc-514670 is recommended as a control antibody for monitoring of TRPC3 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor TRPC3 gene expression knockdown using RT-PCR Primer: TRPC3 (h)-PR: sc-42666-PR (20 µl, 497 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Zeng, B., et al. 2013. TRPC channels and their splice variants are essential for promoting human ovarian cancer cell proliferation and tumorigenesis. Curr. Cancer Drug Targets 13: 103-116.
2. Meng, K., et al. 2014. Calcium sensing receptor modulates extracellular calcium entry and proliferation via TRPC3/6 channels in cultured human mesangial cells. PLoS ONE 9: e98777.
3. Wang, Y., et al. 2016. TRPC1/TRPC3 channels mediate lysophosphatidylcholine-induced apoptosis in cultured human coronary artery smooth muscles cells. Oncotarget 7: 50937-50951.
4. Xue, B., et al. 2018. High photocatalytic activity of ZnO-graphene composite. J. Colloid Interface Sci. 529: 306-313.
5. Shin, S., et al. 2023. Reduction of TRPC1/TRPC3 mediated Ca^{2+}-signaling protects oxidative stress-induced COPD. Cell. Signal. 107: 110681.

RESEARCH USE

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