SANTA CRUZ BIOTECHNOLOGY, INC.

TRPC7 siRNA (h): sc-106641

BACKGROUND

TRPC7 (transient receptor potential cation channel, subfamily C, member 7), also known as TRP7, is an 862 amino acid multi-pass membrane protein that contains four ANK repeats and belongs to the transient receptor family. Functioning as a receptor-activated, non-selective, calcium permeable cation channel, TRPC7 is activated by DAG (diacylglycerol) and may be operated by second messenger systems throughout the body. The gene encoding TRPC7 maps to human chromosome 5, which contains 181 million base pairs and comprises nearly 6% of the human genome. Deletion of the p arm of chromosome 5 leads to cri du chat syndrome, while deletion of the q arm or of chromosome 5 altogether is common in therapy-related acute myelogenous leukemias and myelodysplastic syndrome.

REFERENCES

1. Riccio, A., et al. 2002. Cloning and functional expression of human short TRP7, a candidate protein for store-operated Ca^{2+} influx. J. Biol. Chem. 277: 12302-12309.
2. Lièvremont, J.P., et al. 2004. Canonical transient receptor potential TRPC7 can function as both a receptor- and store-operated channel in HEK-293 cells. Am. J. Physiol., Cell Physiol. 287: C1709-C1716.
3. Zagranichnaya, T.K., et al. 2005. Endogenous TRPC1, TRPC3, and TRPC7 proteins combine to form native store-operated channels in HEK-293 cells. J. Biol. Chem. 280: 29559-29569.
4. Lievremont, J.P., et al. 2005. The role of canonical transient receptor potential 7 in B cell receptor-activated channels. J. Biol. Chem. 280: 35346-35351.
5. Clapham, D.E., et al. 2005. International Union of Pharmacology. XLIX. Nomenclature and structure-function relationships of transient receptor potential channels. Pharmacol. Rev. 57: 427-450.
6. Beck, B., et al. 2006. TRPC7 is a receptor-operated DAG-activated channel in human keratinocytes. J. Invest. Dermatol. 126: 1982-1993.
7. Abed, E. and Moreau, R. 2007. Importance of melastatin-like transient receptor potential 7 and cations (magnesium, calcium) in human osteoblast-like cell proliferation. Cell Prolif. 40: 849-865.

CHROMOSOMAL LOCATION

Genetic locus: TRPC7 (human) mapping to 5q31.1.

PRODUCT

TRPC7 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 TRPC7 shRNA Plasmid (h): sc-106641-SH and TRPC7 shRNA (h) Lentiviral Particles: sc-106641-V as alternate gene silencing products.

For independent verification of TRPC7 (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-106641A, sc-106641B and sc-106641C.

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

TRPC7 siRNA (h) is recommended for the inhibition of TRPC7 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor TRPC7 gene expression knockdown using RT-PCR Primer: TRPC7 (h)-PR: sc-106641-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. 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.
2. Liang, J.L., et al. 2023. TRPC7 facilitates cell growth and migration by regulating intracellular Ca^{2+} mobilization in lung adenocarcinoma cells. Oncol. Lett. 25: 92.

RESEARCH USE

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

PROTOCOLS

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