SANTA CRUZ BIOTECHNOLOGY, INC.

TRAAK siRNA (h): sc-42345

BACKGROUND

K^+ channels are divided into three subclasses, reflecting the number of transmembrane segments (TMS), which are designated 6TMS, 4TMS, and 2TMS. Members of the 4TMS class contain two distinct pore regions, and include TWIK-1, TREK-1, TRAAK, TASK, TASK-2 and TASK-3. TRAAK is selectively expressed in the neuronal tissues of brain, spinal cord, and retina. TRAAK is activated by arachidonic acid, and other unsaturated fatty acids, but not by saturated fatty acids. TRAAK produces baseline K^+ currents, which are strongly stimulated by mechanical stretch and insensitive to K^+ channel blockers.

REFERENCES

1. Fink, M., et al. 1996. Cloning, functional expression and brain localization of a novel unconventional outward rectifier K^+ channel. EMBO J. 15: 6854-6862.
2. Duprat, F., et al. 1997. TASK, a human background K^+ channel to sense external pH variations near physiological pH. EMBO J. 16: 5464-5471.
3. Fink, M., et al. 1998. A neuronal two P domain K^+ channel stimulated by arachidonic acid and polyunsaturated fatty acids. EMBO J. 17: 3297-3308.
4. Cluzeaud, F., et al. 1998. Expression of TWIK-1, a novel weakly inward rectifying potassium channel in rat kidney. Am. J. Physiol. 275: 1602-1609.
5. Maingret, F., et al. 1999. TRAAK is a mammalian neuronal mechano-gated K^+ channel. J. Biol. Chem. 274: 1381-1387.
6. Lesage, F., et al. 2000. Cloning and expression of human TRAAK, a polyunsaturated fatty acids-activated and mechano-sensitive K^+ channel. FEBS Lett. 471: 137-140.
7. Reyes, R., et al. 2000. Immunolocalization of the arachidonic acid and mechanosensitive baseline traak potassium channel in the nervous system. Neuroscience 95: 893-901.

CHROMOSOMAL LOCATION

Genetic locus: KCNK4 (human) mapping to 11q13.1.

PRODUCT

TRAAK 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 TRAAK shRNA Plasmid (h): sc-42345-SH and TRAAK shRNA (h) Lentiviral Particles: sc-42345-V as alternate gene silencing products.

For independent verification of TRAAK (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-42345A, sc-42345B and sc-42345C.

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

TRAAK siRNA (h) is recommended for the inhibition of TRAAK 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 TRAAK gene expression knockdown using RT-PCR Primer: TRAAK (h)-PR: sc-42345-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. Chai, S., et al. 2017. Contribution of two-pore K^+ channels to cardiac ventricular action potential revealed using human iPSC-derived cardiomyocytes. Am. J. Physiol. Heart Circ. Physiol. 312: H1144-H1153.

RESEARCH USE

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