SANTA CRUZ BIOTECHNOLOGY, INC.

TASK-1 siRNA (m): sc-42340

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, TREK, TRAAK and TASK. TASK channels are highly sensitive to external pH in the physiological range. TASK-1 is expressed in brain and in rat heart, with high levels of expression in the right atrium. TASK-2, mainly expressed in kidney, is localized in cortical distal tubules and collecting ducts, suggesting a role in renal K^+ transport. TASK-3 from rat cerebellum shares 54% identity with TASK-1, but less than 30% identity with TASK-2 and other tandem pore K^+ channels.

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. Cluzeaud, F., et al. 1998. Expression of TWIK-1, a novel weakly inward rectifying potassium channel in rat kidney. Am. J. Physiol. 275: C1602-C1609.
4. 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.
5. Reyes, R., et al. 1998. Cloning and expression of a novel pH-sensitive two pore domain K^+ channel from human kidney. J. Biol. Chem. 273: 30863-30869.
6. Kim, Y., et al. 1999. TBAK-1 and TASK-1, two pore K^+ channel subunits: kinetic properties and expression in rat heart. Am. J. Physiol. 277: H1669-H1678.
7. Millar, J.A., et al. 2000. A functional role for the two pore domain potassium channel TASK-1 in cerebellar granule neurons. Proc. Natl. Acad. Sci. USA 97: 3614-3618.
8. Kim, Y., et al. 2000. TASK-3, a new member of the tandem pore K^+ channel family. J. Biol. Chem. 275: 9340-9347.

CHROMOSOMAL LOCATION

Genetic locus: Kcnk3 (mouse) mapping to 5 B1.

PRODUCT

TASK-1 siRNA (m) 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 TASK-1 shRNA Plasmid (m): sc-42340-SH and TASK-1 shRNA (m) Lentiviral Particles: sc-42340-V as alternate gene silencing products.

For independent verification of TASK-1 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-42340A, sc-42340B and sc-42340C.

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

TASK-1 siRNA (m) is recommended for the inhibition of TASK-1 expression in mouse 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 TASK-1 gene expression knockdown using RT-PCR Primer: TASK-1 (m)-PR: sc-42340-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.