

THIK-2 siRNA (h): sc-61682

BACKGROUND

Potassium channels play an important role in cell excitability and plasticity. The pore loop domain, a highly conserved region common to all potassium channels, is involved in determining potassium ion selectivity. The family of potassium channels possessing two-pore loop domains consists of both inward and outwardly rectifying channels and includes THIK-1, THIK-2, TRESK, TALK-1, and TALK-2. Members of this family are all characterized by four transmembrane domains and may function to help influence the resting membrane potential of cells. THIK-1 and THIK-2, which form a separate subfamily among tandem pore domain (K⁺) channels, do not form heteromers, and are expressed in restricted neuronal populations. THIK-2 is a halothane inhibited potassium channel of 430 amino acids. The gene which encodes the THIK-2 protein possesses one intron and is assigned to chromosomal region 2p22-2p21. THIK-2 is expressed mainly in the brain and lung, but its expression is also observed in the kidneys, heart, and skeletal muscle. THIK-2 is not expressed as a functional protein, and it may require other proteins to become active.

REFERENCES

1. Rajan, S., Wischmeyer, E., Karschin, C., Preisig-Müller, R., Grzeschik, K.H., Daut, J., Karschin, A. and Derst, C. 2001. THIK-1 and THIK-2, a novel subfamily of tandem pore domain K⁺ channels. *J. Biol. Chem.* 276: 7302-7311.
2. Girard, C., Duprat, F., Terrenoire, C., Tinel, N., Fosset, M., Romey, G., Lazdunski, M. and Lesage, F. 2001. Genomic and functional characteristics of novel human pancreatic 2P domain K⁺ channels. *Biochem. Biophys. Res. Commun.* 282: 249-256.
3. Jezini, S.H. and Moroz, L.L. 2004. Identification and distribution of a two-pore domain potassium channel in the CNS of *Aplysia californica*. *Brain Res. Mol. Brain Res.* 127: 27-38.
4. Yeom, M., Shim, I., Lee, H.J. and Hahm, D.H. 2004. Proteomic analysis of nicotine-associated protein expression in the striatum of repeated nicotine-treated rats. *Biochem. Biophys. Res. Commun.* 326: 321-328.
5. Holt, A.G., Asako, M., Keith Duncan, R., Lomax, C.A., Juiz, J.M. and Altschuler, R.A. 2006. Deafness associated changes in expression of two-pore domain potassium channels in the rat cochlear nucleus. *Hear. Res.* 216-217: 146-153.
6. Nakagawa, Y., Yoshida, A., Numoto, K., Kunisada, T., Wai, D., Ohata, N., Takeda, K., Kawai, A. and Ozaki, T. 2006. Chromosomal imbalances in malignant peripheral nerve sheath tumor detected by metaphase and microarray comparative genomic hybridization. *Oncol. Rep.* 15: 297-303.
7. Nakagawa, Y., Numoto, K., Yoshida, A., Kunisada, T., Ohata, H., Takeda, K., Wai, D., Poremba, C. and Ozaki, T. 2006. Chromosomal and genetic imbalances in synovial sarcoma detected by conventional and microarray comparative genomic hybridization. *J. Cancer Res. Clin. Oncol.* 132: 444-450.

PROTOCOLS

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

CHROMOSOMAL LOCATION

Genetic locus: KCNK12 (human) mapping to 2p21.

PRODUCT

THIK-2 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see THIK-2 shRNA Plasmid (h): sc-61682-SH and THIK-2 shRNA (h) Lentiviral Particles: sc-61682-V as alternate gene silencing products.

For independent verification of THIK-2 (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-61682A, sc-61682B and sc-61682C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

THIK-2 siRNA (h) is recommended for the inhibition of THIK-2 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 μ M in 66 μ 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor THIK-2 gene expression knockdown using RT-PCR Primer: THIK-2 (h)-PR: sc-61682-PR (20 μ l). 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.