SANTA CRUZ BIOTECHNOLOGY, INC.

KCNH6 siRNA (h): sc-93962

BACKGROUND

Voltage-gated potassium channels play an essential role in controlling cellular excitability in the nervous system. They regulate a variety of properties including membrane potential as well as the frequency and structure of action potentials. KCNH6, also called potassium voltage-gated channel subfamily H member 6 or human ether-a-go-go potassium channel 2 (hEAG2), is an α subunit of a multi-pass transmembrane potassium channel family. KCNH6 functions in forming the pore of the voltage-gated channel. The channel itself is a homo- or heterotetrameric structure of pore-forming α subunits that associate with modulating β subunits. KCNH6 contains one PAS-associated C-terminal (PAC) domain, one PER-ARNT-SIM (PAS) domain and one cyclic nucleotide-binding domain. Expressed as three isoforms produced by alternative splicing, KCNH6 is present in prolactin-secreting adenomas and throughout the brain.

REFERENCES

1. Ganetzky, B., Robertson, G.A., Wilson, G.F., Trudeau, M.C. and Titus, S.A. 1999. The eag family of K^+ channels in *Drosophila* and mammals. Ann. N.Y. Acad. Sci. 868: 356-369.
2. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 608168. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Papa, M., Boscia, F., Canitano, A., Castaldo, P., Sellitti, S., Annunziato, L. and Taglialatela, M. 2003. Expression pattern of the ether-a-gogo-related (ERG) K^+ channel-encoding genes ERG1, ERG2, and ERG3 in the adult rat central nervous system. J. Comp. Neurol. 466: 119-135.
4. Bauer, C.K., Wulfsen, I., Schäfer, R., Glassmeier, G., Wimmers, S., Flitsch, J., Lüdecke, D.K. and Schwarz, J.R. 2003. HERG K^+ currents in human prolactin-secreting adenoma cells. Pflugers Arch. 445: 589-600.
5. Gutman, G.A., Chandy, K.G., Grissmer, S., Lazdunski, M., McKinnon, D., Pardo, L.A., Robertson, G.A., Rudy, B., Sanguinetti, M.C., Stühmer, W. and Wang, X. 2005. International union of pharmacology. LIII. Nomenclature and molecular relationships of voltage-gated potassium channels. Pharmacol. Rev. 57: 473-508.
6. Yoshida, K. and Niwa, T. 2006. Quantitative structure-activity relationship studies on inhibition of HERG potassium channels. J. Chem. Inf. Model. 46: 1371-1378.
7. Ferrer, T., Rupp, J., Piper, D.R. and Tristani-Firouzi, M. 2006. The S4-S5 linker directly couples voltage sensor movement to the activation gate in the human ether-a-go-go-related gene (hERG) K^+ channel. J. Biol. Chem. 281: 12858-12864.
8. Elmedyb, P., Olesen, S.P. and Grunnet, M. 2007. Activation of ERG2 potassium channels by the diphenylurea NS1643. Neuropharmacology 53: 283-294.

CHROMOSOMAL LOCATION

Genetic locus: KCNH6 (human) mapping to 17q23.3.

PROTOCOLS

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

PRODUCT

KCNH6 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 KCNH6 shRNA Plasmid (h): sc-93962-SH and KCNH6 shRNA (h) Lentiviral Particles: sc-93962-V as alternate gene silencing products.

For independent verification of KCNH6 (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-93962A, sc-93962B and sc-93962C.

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

KCNH6 siRNA (h) is recommended for the inhibition of KCNH6 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 KCNH6 gene expression knockdown using RT-PCR Primer: KCNH6 (h)-PR: sc-93962-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.