SANTA CRUZ BIOTECHNOLOGY, INC.

KCNH7 siRNA (h): sc-94618

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 and the frequency and structure of action potentials. KCNH7 (potassium voltage-gated channel subfamily H member 7), also known as ERG-3 (ether-a-go-go-related gene potassium channel 3), or Kv11.3 (voltage-gated potassium channel subunit Kv11.3), is a 1,196 amino acid multi-pass membrane protein that is expressed in prolactin-secreting adenomas and belongs to the potassium channel family. Containing one cyclic nucleotide-binding domain, a PAC (PAS-associated C-terminal) domain, and a PAS (PER-ARNT-SIM) domain, KCNH7 is a member of the pore-forming α subunit of the voltage-gated potassium channel. Existing as two alternatively spliced isoforms, the gene encoding KCNH7 maps to human chromosome 2q24.2 and mouse chromosome 2 C1.3.

REFERENCES

1. Occhiodoro, T., Bernheim, L., Liu, J.H., Bijlenga, P., Sinnreich, M., Bader, C.R. and Fischer-Lougheed, J. 1998. Cloning of a human ether-a-go-go potassium channel expressed in myoblasts at the onset of fusion. FEBS Lett. 434: 177-182.
2. Miyake, A., Mochizuki, S., Yokoi, H., Kohda, M. and Furuichi, K. 1999. New ether-à-go-go K^+ channel family members localized in human telencephalon. J. Biol. Chem. 274: 25018-25025.
3. Ju, M. and Wray, D. 2002. Molecular identification and characterisation of the human eag2 potassium channel. FEBS Lett. 524: 204-210.
4. Zou, A., Lin, Z., Humble, M., Creech, C.D., Wagoner, P.K., Krafte, D., Jegla, T.J. and Wickenden, A.D. 2003. Distribution and functional properties of human KCNH8 (Elk1) potassium channels. Am. J. Physiol., Cell Physiol. 285: C1356-C1366.
5. 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.
6. Ju, M. and Wray, D. 2006. Molecular regions responsible for differences in activation between heag channels. Biochem. Biophys. Res. Commun. 342: 1088-1097.
7. Couturier, N., Gourraud, P.A., Cournu-Rebeix, I., Gout, C., Bucciarelli, F., Edan, G., Babron, M.C., Clerget-Darpoux, F., Clanet, M., Fontaine, B. and Brassat, D. 2009. IFIH1-GCA-KCNH7 locus is not associated with genetic susceptibility to multiple sclerosis in French patients. Eur. J. Hum. Genet. 17: 844-847.

CHROMOSOMAL LOCATION

Genetic locus: KCNH7 (human) mapping to 2q24.2.

PROTOCOLS

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

PRODUCT

KCNH7 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 KCNH7 shRNA Plasmid (h): sc-94618-SH and KCNH7 shRNA (h) Lentiviral Particles: sc-94618-V as alternate gene silencing products.

For independent verification of KCNH7 (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-94618A, sc-94618B and sc-94618C.

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

KCNH7 siRNA (h) is recommended for the inhibition of KCNH7 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 KCNH7 gene expression knockdown using RT-PCR Primer: KCNH7 (h)-PR: sc-94618-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.