SANTA CRUZ BIOTECHNOLOGY, INC.

KCNG2 siRNA (h): sc-75369

BACKGROUND

Neuronal and cardiac cells are excited by voltage-gated ion channels. Voltage-gated K^+ channels in the plasma membrane control the repolarization and the frequency of action potentials in neurons, muscles and other excitable cells. Mutations interfering with potassium ion channels are known to cause a variety of disorders. KCNG2 (potassium voltage-gated channel subfamily G member 2) is also known as voltage-gated potassium channel subunit KV6.2, cardiac potassium channel subunit or KCNF2 and is a 466 amino acid protein. KCNG2 is a multi-pass membrane protein abundantly expressed in heart, liver, skeletal muscle, kidney and pancreas, and detected at lower concentrations in brain, lung and placenta. KCNG2 is an electrically silent subunit that forms heterodimers with KV2.1, creating a unique functional K^+ channel. KCNG2-KV2.1 heterodimers are known to be inhibited by tetraethylammonium and propafenone. KCNG2 is thought to downregulate potassium channel currents because KCNG2-KV2.1 heterodimers generate smaller currents than KV2.1 homodimers.

REFERENCES

1. Zhu, X.R., et al. 1999. Structural and functional characterization of Kv6.2 a new γ-subunit of voltage-gated potassium channel. Receptors Channels 6: 337-350.
2. Thorneloe, K.S. and Nelson, M.T. 2003. Properties and molecular basis of the mouse urinary bladder voltage-gated K^+ current. J. Physiol. 549: 65-74.
3. Yan, L., et al. 2004. Expression of voltage-gated potassium channels in human and rhesus pancreatic islets. Diabetes 53: 597-607.
4. Fantozzi, I., et al. 2006. Bone morphogenetic protein-2 upregulates expression and function of voltage-gated K^+ channels in human pulmonary artery smooth muscle cells. Am. J. Physiol. Lung Cell. Mol. Physiol. 291: L993-L1004.
5. Börjesson, S.I. and Elinder, F. 2008. Structure, function, and modification of the voltage sensor in voltage-gated ion channels. Cell. Biochem. Biophys. 52: 149-174.
6. Pischalnikova, A.V. and Sokolova, O.S. 2008. The domain and conformational organization in potassium voltage-gated ion channels. J. Neuroimmune Pharmacol. 4: 71-82.

CHROMOSOMAL LOCATION

Genetic locus: KCNG2 (human) mapping to 18q23.

PRODUCT

KCNG2 siRNA (h) is a target-specific 19-25 nt siRNA 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 KCNG2 shRNA Plasmid (h): sc-75369-SH and KCNG2 shRNA (h) Lentiviral Particles: sc-75369-V as alternate gene silencing products.

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

KCNG2 siRNA (h) is recommended for the inhibition of KCNG2 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 KCNG2 gene expression knockdown using RT-PCR Primer: KCNG2 (h)-PR: sc-75369-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.