SANTA CRUZ BIOTECHNOLOGY, INC.

KCNG3 siRNA (h): sc-95004

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. A subunit of the potassium channel, KCNG3 (potassium voltage-gated channel subfamily G member 3) is a 436 amino acid protein that modulates channel activity and forms a heteromultimer with KV2.1, KV3.1 and KCNF1. KCNG3 contains an S4 domain that may serve as the voltage-sensor and is characterized by a series of positively charged amino acids at every third position. KCNG3 localizes to the membrane, however it must be associated with KV2.1 and possibly another partner to get inserted in the plasma membrane. KCNG3 is detected in testis, pancreas, lung, kidney, ovary, small intestine, colon, thymus, adrenal gland, spinal cord and in many parts of the brain, with the exception of the cerebellum.

REFERENCES

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3. Yan, L., et al. 2004. Expression of voltage-gated potassium channels in human and rhesus pancreatic islets. Diabetes 53: 597-607.
4. Ottschytsch, N., et al. 2005. Domain analysis of Kv6.3, an electrically silent channel. J. Physiol. 568: 737-747.
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6. 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.
7. Pischalnikova, A.V. and Sokolova, O.S. 2009. The domain and conformational organization in potassium voltage-gated ion channels. J. Neuroimmune Pharmacol. 4: 71-82.
8. Mederos, Y., et al. 2009. Mutation of histidine 105 in the T1 domain of the potassium channel Kv2.1 disrupts heteromerization with Kv6.3 and Kv6.4. J. Biol. Chem. 284: 4695-4704.
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CHROMOSOMAL LOCATION

Genetic locus: KCNG3 (human) mapping to 2p21.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PRODUCT

KCNG3 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 KCNG3 shRNA Plasmid (h): sc-95004-SH and KCNG3 shRNA (h) Lentiviral Particles: sc-95004-V as alternate gene silencing products.

For independent verification of KCNG3 (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-95004A, sc-95004B and sc-95004C.

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

KCNG3 siRNA (h) is recommended for the inhibition of KCNG3 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 KCNG3 gene expression knockdown using RT-PCR Primer: KCNG3 (h)-PR: sc-95004-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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