SANTA CRUZ BIOTECHNOLOGY, INC.

KCNG1 siRNA (m): sc-146359

BACKGROUND

KCNG1 (potassium voltage-gated channel subfamily G member 1) is also known as K13, kH2, KCNG or KV6.1 (voltage-gated potassium channel subunit Kv6.1) and is a multi-pass membrane protein that is 513 amino acids. KCNG1 is expressed as two isoforms and can be obtained from tissues including brain, placenta, kidneys and pancreas. KCNG1 has six transmembrane domains and is localized to the plasma membrane of cells. KCNG1 is an α-subunit that does not form a functional potassium channel unless it is incorporated into a heteromultimer with KV2.1. The KCNG1-KV2.1 heterotetramer is able to form a unique, functional potassium channel. KCNG1 and KV2.1 mRNA colocalize in brain and heart tissues including piriform cortex, hippocampus, dentate gyrus, olfactory tubercle, SA node, atria and ventricle. KCNG1 has an S6 domain regulatory region, followed by a short C-terminal sequence. KCNG1 is thought to regulate KV2.1, and PKA (cAMP-dependent kinase) is thought to regulate KCNG1-KV2.1 structure. Mutations in potassium channel genes are associated with many disorders. However, many pathological situations have only been associated with related chromosomes and have yet to be isolated to specific gene mutations.

REFERENCES

1. Post, M.A., Kirsch, G.E. and Brown, A.M. 1996. Kv2.1 and electrically silent Kv6.1 potassium channel subunits combine and express a novel current. FEBS Lett. 399: 177-182.
2. Su, K., Kyaw, H., Fan, P., Zeng, Z., Shell, B.K., Carter, K.C. and Li, Y. 1997. Isolation, characterization, and mapping of two human potassium channels. Biochem. Biophys. Res. Commun. 241: 675-681.
3. Salinas, M., Duprat, F., Heurteaux, C., Hugnot, J.P. and Lazdunski, M. 1997. New modulatory alpha subunits for mammalian Shab K^+ channels. J. Biol. Chem. 272: 24371-24379.
4. Kramer, J.W., Post, M.A., Brown, A.M. and Kirsch, G.E. 1998. Modulation of potassium channel gating by coexpression of Kv2.1 with regulatory Kv5.1 or Kv6.1 α-subunits. Am. J. Physiol. 274: C1501-C1510.
5. 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.
6. Online Mendelian Inheritance in Man, OMIM™. 2003. Johns Hopkins University, Baltimore, MD. MIM Number: 603788. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/

CHROMOSOMAL LOCATION

Genetic locus: Kcng1 (mouse) mapping to 2 H3.

PRODUCT

KCNG1 siRNA (m) 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 KCNG1 shRNA Plasmid (m): sc-146359-SH and KCNG1 shRNA (m) Lentiviral Particles: sc-146359-V as alternate gene silencing 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

KCNG1 siRNA (m) is recommended for the inhibition of KCNG1 expression in mouse 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 KCNG1 gene expression knockdown using RT-PCR Primer: KCNG1 (m)-PR: sc-146359-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.

PROTOCOLS

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