SANTA CRUZ BIOTECHNOLOGY, INC.

KCNA10 siRNA (m): sc-62528

BACKGROUND

KCNA10, also called cyclic GMP gated potassium channel, is a member of the shaker-related subfamily of the potassium voltage-gated channel family. This 511 amino acid multipass membrane protein acts as a potassium-selective channel through which potassium ions flow in accordance with their electrochemical gradient. KCNA10 is expressed in human proximal tubular cells, glomerular and vascular endothelial cells and vascular smooth muscle cells. KCNA10 takes on two conformations: the open conformation and closed conformation. These conformations are determined by the voltage difference across the plasma membrane. KCNA10 shares common traits with K-selective and cyclic-nucleotide-gated (CNG) cation channels. The C-terminus of KCNA10 may be involved in targeting the channel to specific subcellular compartments. The S4 segment of KCNA10 is anticipated to be the voltage sensor due to its high sequence similarity to other closely related channel proteins.

REFERENCES

1. Orias, M., Bray-Ward, P., Curran, M.E., Keating, M.T. and Desir, G.V. 1997. Genomic localization of the human gene for KCNA10, a cGMP-activated K channel. Genomics 42: 33-37.
2. Lang, R., Lee, G., Liu, W., Tian, S., Rafi, H., Orias, M., Segal, A.S. and Desir, G.V. 2000. KCNA10: a novel ion channel functionally related to both voltage-gated potassium and CNG cation channels. Am. J. Physiol. Renal Physiol. 278: F1013-F1021.
3. Yao, X., Tian, S., Chan, H.Y., Biemesderfer, D. and Desir, G.V. 2002. Expression of KCNA10, a voltage-gated K channel, in glomerular endothelium and at the apical membrane of the renal proximal tubule. J. Am. Soc. Nephrol. 13: 2831-2839.
4. Tian, S., Liu, W., Wu, Y., Rafi, H., Segal, A.S. and Desir, G.V. 2002. Regulation of the voltage-gated K^+ channel KCNA10 by KCNA4B, a novel β-subunit. Am. J. Physiol. Renal Physiol. 283: F142-F149.
5. Wang, W. 2004. Renal potassium channels: recent developments. Curr. Opin. Nephrol. Hypertens. 13: 549-555.

CHROMOSOMAL LOCATION

Genetic locus: Kcna10 (mouse) mapping to 3 F2.3.

PRODUCT

KCNA10 siRNA (m) 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 KCNA10 shRNA Plasmid (m): sc-62528-SH and KCNA10 shRNA (m) Lentiviral Particles: sc-62528-V as alternate gene silencing products.

For independent verification of KCNA10 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-62528A, sc-62528B and sc-62528C.

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

KCNA10 siRNA (m) is recommended for the inhibition of KCNA10 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 KCNA10 gene expression knockdown using RT-PCR Primer: KCNA10 (m)-PR: sc-62528-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.