SANTA CRUZ BIOTECHNOLOGY, INC.

KCNC3 siRNA (h): sc-97185

BACKGROUND

KCNC3 (potassium voltage-gated channel subfamily C member 3) is a multi-pass membrane-bound protein that acts as an ion channel and is generally expressed as a heterotetramer of potassium channeling proteins. The corneal epithelium is an important cell layer that functions to separate the corneal stroma from the anterior chamber of the eye. Increased expression of KCNC3 in confluent corneal endothelial cells suggests that the ionic current maintained by KCNC3 acts to regulate the hydration and transparency of the corneal stroma. Potassium channel regulation is also important for the high-frequency firing of cerebellar neurons. Defects, primarily missense mutations, in the gene encoding the KCNC3 protein have been attributed to neurological developmental disorders and adult onset neurological diseases.

REFERENCES

1. D'Adamo, M.C., et al. 1999. Mutations in the KCNA1 gene associated with episodic ataxia type-1 syndrome impair heteromeric voltage-gated K^+ channel function. FASEB J. 13: 1335-1345.
2. Zuberi, S.M., et al. 1999. A novel mutation in the human voltage-gated potassium channel gene (Kv1.1) associates with episodic ataxia type 1 and sometimes with partial epilepsy. Brain 122: 817-825.
3. Rae, J.L., et al. 2000. Kv3.3 potassium channels in lens epithelium and corneal endothelium. Exp. Eye Res. 70: 339-348.
4. Imbrici, P., et al. 2003. Functional characterization of an episodic ataxia type-1 mutation occurring in the S1 segment of hKv1.1 channels. Pflugers Arch. 446: 373-379.
5. Imbrici, P., et al. 2004. Dysfunction of the brain calcium channel CaV2.1 in absence epilepsy and episodic ataxia. Brain 127: 2682-2692.
6. Cusimano, A., et al. 2004. An episodic ataxia type-1 mutation in the S1 segment sensitises the hKv1.1 potassium channel to extracellular Zn^{2+}. FEBS Lett. 576: 237-244.
7. Imbrici, P., et al. 2006. Episodic ataxia type 1 mutations in the KCNA1 gene impair the fast inactivation properties of the human potassium channels Kv1.4-1.1/Kvβ1.1 and Kv1.4-1.1/Kvβ1.2. Eur. J. Neurosci. 24: 3073-3083.

CHROMOSOMAL LOCATION

Genetic locus: KCNC3 (human) mapping to 19q13.33.

PRODUCT

KCNC3 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 KCNC3 shRNA Plasmid (h): sc-97185-SH and KCNC3 shRNA (h) Lentiviral Particles: sc-97185-V as alternate gene silencing products.

For independent verification of KCNC3 (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-97185A, sc-97185B and sc-97185C.

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

KCNC3 siRNA (h) is recommended for the inhibition of KCNC3 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.

GENE EXPRESSION MONITORING

KCNC3 (D-4): sc-398047 is recommended as a control antibody for monitoring of KCNC3 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor KCNC3 gene expression knockdown using RT-PCR Primer: KCNC3 (h)-PR: sc-97185-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Chen, Y., et al. 2009. Functions of TAM RTKs in regulating spermatogenesis and male fertility in mice. Reproduction 138: 655-666.

RESEARCH USE

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