SANTA CRUZ BIOTECHNOLOGY, INC.

KCNE3 siRNA (m): sc-35744

BACKGROUND

Voltage-gated K^+ channels in the plasma membrane control the repolarization and the frequency of action potentials in neurons, muscles and other excitable cells. KCNE3 (potassium voltage-gated channel, Isk-related family, member 3), also known as HYPP, potassium channel subunit β MiRP2 or HOKPP, is a 103 amino acid single-pass type I membrane protein belonging to the potassium channel KCNE family. Expressed predominantly in kidney, KCNE3 is also found at moderate levels in small intestine and associates with a voltage-gated potassium channel complex to regulate stability and gating kinetics. The gene encoding KCNE3 maps to human chromosome 11q13.4; defects in which are the cause of an autosomal dominant disorder known as periodic paralysis hypokalemic (or HOKPP), a muscular disorder known as thyrotoxic periodic paralysis type 1 (TTPP1) and Brugada syndrome type 6 (BRS6).

REFERENCES

1. Abbott, G.W., et al. 1999. MiRP1 forms IKr potassium channels with HERG and is associated with cardiac arrhythmia. Cell 97: 175-187.
2. Abbott, G.W., et al. 2001. MiRP2 forms potassium channels in skeletal muscle with Kv3.4 and is associated with periodic paralysis. Cell 104: 217-231.
3. Dias Da Silva, M.R., et al. 2002. A mutation in the KCNE3 potassium channel gene is associated with susceptibility to thyrotoxic hypokalemic periodic paralysis. J. Clin. Endocrinol. Metab. 87: 4881-4884.
4. Tang, N.L., et al. 2004. No mutation in the KCNE3 potassium channel gene in Chinese thyrotoxic hypokalaemic periodic paralysis patients. Clin. Endocrinol. 61: 109-112.
5. Lundby, A. and Olesen, S.P. 2006. KCNE3 is an inhibitory subunit of the Kv4.3 potassium channel. Biochem. Biophys. Res. Commun. 346: 958-967.
6. Abbott, G.W., et al. 2006. Phosphorylation and protonation of neighboring MiRP2 sites: function and pathophysiology of MiRP2-Kv3.4 potassium channels in periodic paralysis. FASEB J. 20: 293-301.
7. Delpón, E., et al. 2008. Functional effects of KCNE3 mutation and its role in the development of Brugada syndrome. Circ. Arrhythm. Electrophysiol. 1: 209-218.

CHROMOSOMAL LOCATION

Genetic locus: Kcne3 (mouse) mapping to 7 E2.

PRODUCT

KCNE3 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 KCNE3 shRNA Plasmid (m): sc-35744-SH and KCNE3 shRNA (m) Lentiviral Particles: sc-35744-V as alternate gene silencing products.

For independent verification of KCNE3 (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-35744A, sc-35744B and sc-35744C.

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

KCNE3 siRNA (m) is recommended for the inhibition of KCNE3 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.

GENE EXPRESSION MONITORING

KCNE3 (G-6): sc-393841 is recommended as a control antibody for monitoring of KCNE3 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 KCNE3 gene expression knockdown using RT-PCR Primer: KCNE3 (m)-PR: sc-35744-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.