SANTA CRUZ BIOTECHNOLOGY, INC.

KCNRG siRNA (h): sc-75372

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. The KV gene family encodes more than 30 genes that comprise the subunits of the K^+ channels and they vary in their gating and permeation properties, subcellular distribution and expression patterns. The potassium channel regulator KCNRG inhibits potassium fluxes in cells, specifically through Kv1.1 and Kv1.4 channels. KCNRG maps to human chromosome 13q14.2, a region frequently prone to deletions. Subsequently, loss of the tumor suppressor actions of KCNRG has been shown to lead to gastrointestinal stromal tumors, hepatocellular carcinomas, as well as other soft tissue tumors. In addition, production of autoantibodies to KCNRG contribute to the pulmonary symptoms of patients with autoimmune polyendocrine syndrome type 1 (APS-1).

REFERENCES

1. Ivanov, D.V., et al. 2003. A new human gene KCNRG encoding potassium channel regulating protein is a cancer suppressor gene candidate located in 13q14.3. FEBS Lett. 539: 156-160.
2. Cho, Y.G., et al. 2006. Genetic and expression analysis of the KCNRG gene in hepatocellular carcinomas. Exp. Mol. Med. 38: 247-255.
3. Zhou, W.X., et al. 2007. Analysis of 13q14 chromosomal instability in soft tissue tumors by fluorescence *in situ* hybridization. Zhonghua Bing Li Xue Za Zhi 36: 582-586.
4. Usman, H. and Mathew, M.K. 2009. Potassium channel regulator KCNRG regulates surface expression of Shaker-type potassium channels. Biochem. Biophys. Res. Commun. 391:1301-1305.
5. Zhou, W., et al. 2009. Aberrations of chromosome 13q in gastrointestinal stromal tumors: analysis of 91 cases by fluorescence *in situ* hybridization (FISH). Diagn. Mol. Pathol. 18: 72-80.
6. Alimohammadi, M., et al. 2009. Pulmonary autoimmunity as a feature of autoimmune polyendocrine syndrome type 1 and identification of KCNRG as a bronchial autoantigen. Proc. Natl. Acad. Sci. USA 106: 4396-4401.

CHROMOSOMAL LOCATION

Genetic locus: KCNRG (human) mapping to 13q14.2.

PRODUCT

KCNRG 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 KCNRG shRNA Plasmid (h): sc-75372-SH and KCNRG shRNA (h) Lentiviral Particles: sc-75372-V as alternate gene silencing products.

For independent verification of KCNRG (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-75372A, sc-75372B and sc-75372C.

RESEARCH USE

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

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

KCNRG siRNA (h) is recommended for the inhibition of KCNRG 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

KCNRG (A-9): sc-390290 is recommended as a control antibody for monitoring of KCNRG 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 KCNRG gene expression knockdown using RT-PCR Primer: KCNRG (h)-PR: sc-75372-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.