SANTA CRUZ BIOTECHNOLOGY, INC.

KCNH1 siRNA (m): sc-146362

BACKGROUND

Voltage-gated potassium channels play an essential role in controlling cellular excitability in the nervous system. They regulate a variety of properties including membrane potential as well as the frequency and structure of action potentials. KCNH1 (potassium voltage-gated channel, subfamily H (eag-related), member 1), also known as ether-a-go-go potassium channel 1, voltage-gated potassium channel subunit Kv10.1, EAG, EAG1 or h-Eag, is a 989 amino acid multi-pass membrane protein belonging to the potassium channel family and H (Eag) subfamily. KCNH1 is highly expressed in myoblasts and brain, forms two alternatively spliced isoforms and exists as a pore-forming (α) subunit of a voltage-gated non-inactivating delayed rectifier potassium channel. Encoded by a gene located on human chromosome 1, KCNH1 forms a heteromultimer with KCNH5 and also interacts with ALG10.

REFERENCES

1. Warmke, J.W., et al. 1994. A family of potassium channel genes related to Eag in *Drosophila* and mammals. Proc. Natl. Acad. Sci. USA 91: 3438-3442.
2. Occhiodoro, T., et al. 1998. Cloning of a human ether-a-go-go potassium channel expressed in myoblasts at the onset of fusion. FEBS Lett. 434: 177-182.
3. Online Mendelian Inheritance in Man, OMIM™. 1998. Johns Hopkins University, Baltimore, MD. MIM Number: 603305. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Ding, X.W., et al. 2007. Aberrant expression of ether a-go-go potassium channel in colorectal cancer patients and cell lines. World J. Gastroenterol. 13: 1257-1261.
5. Ding, X.W., et al. 2008. Expression and prognostic roles of Eag1 in resected esophageal squamous cell carcinomas. Dig. Dis. Sci. 53: 2039-2044.
6. Downie, B.R., et al. 2008. Eag1 expression interferes with hypoxia homeostasis and induces angiogenesis in tumors. J. Biol. Chem. 283: 36234-36240.
7. Martin, S., et al. 2008. Eag1 potassium channel immunohistochemistry in the CNS of adult rat and selected regions of human brain. Neuroscience 155: 833-844.

CHROMOSOMAL LOCATION

Genetic locus: Kcnh1 (mouse) mapping to 1 H6.

PRODUCT

KCNH1 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 KCNH1 shRNA Plasmid (m): sc-146362-SH and KCNH1 shRNA (m) Lentiviral Particles: sc-146362-V as alternate gene silencing products.

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

KCNH1 siRNA (m) is recommended for the inhibition of KCNH1 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

KCNH1 (C-11): sc-398585 is recommended as a control antibody for monitoring of KCNH1 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 KCNH1 gene expression knockdown using RT-PCR Primer: KCNH1 (m)-PR: sc-146362-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.