SANTA CRUZ BIOTECHNOLOGY, INC.

KV9.3 siRNA (m): sc-60914

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 proteins that comprise the subunits of the K^+ channels, and they vary in their gating and permeation properties, subcellular distribution, and expression patterns. Functional KV channels assemble as tetramers consisting of pore-forming α-subunits (KV), which include the KV1, KV2, KV3, KV4, and KV9 proteins, and accessory or KV-subunits that modify the gating properties of the coexpressed KV subunits. KV9.3 is a K^+ channel subunit that reduces the ion flow and regulates channel activity. It localizes to the cellular membrane and is expressed in most tissues, with highest expression detected in the lung and no detection in peripheral blood lymphocytes.

REFERENCES

1. Deal, K.K., et al. 1994. The brain KV1.1 potassium channel: *in vitro* and *in vivo* studies on subunit assembly and posttranslational processing. J. Neurosci. 14: 1666-1676.
2. Veh, R.W., et al. 1995. Immunohistochemical localization of five members of the KV1 channel subunits: contrasting subcellular locations and neuron-specific co-localizations in rat brain. Eur. J. Neurosci. 7: 2189-2205.
3. Shepard, A.R., et al. 1999. Electrically silent potassium channel subunits from human lens epithelium. Am. J. Physiol. 277: C412-C424.
4. Leicher, T., et al. 1999. Coexpression of the KCNA3B gene product with KV1.5 leads to a novel A-type potassium channel. J. Biol. Chem. 273: 35095-35101.
5. Manganas, L.N., et al. 2000. Subunit composition determines KV1 potassium channel surface expression. J. Biol. Chem. 275: 29685-29693.
6. Kerschensteiner, D., et al. 2005. Fluorescence measurements reveal stoichiometry of K^+ channels formed by modulatory and delayed rectifier α-subunits. Proc. Natl. Acad. Sci. USA 102: 6160-6165.

CHROMOSOMAL LOCATION

Genetic locus: Kcsn3 (mouse) mapping to 12 A1.1.

PRODUCT

KV9.3 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 KV9.3 shRNA Plasmid (m): sc-60914-SH and KV9.3 shRNA (m) Lentiviral Particles: sc-60914-V as alternate gene silencing products.

For independent verification of KV9.3 (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-60914A, sc-60914B and sc-60914C.

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

KV9.3 siRNA (m) is recommended for the inhibition of KV9.3 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

KV9.3 (D-6): sc-365979 is recommended as a control antibody for monitoring of KV9.3 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 KV9.3 gene expression knockdown using RT-PCR Primer: KV9.3 (m)-PR: sc-60914-PR (20 µl). An-nealing 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.