SANTA CRUZ BIOTECHNOLOGY, INC.

KV3.2 siRNA (h): sc-62534

BACKGROUND

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. The subunits vary in their gating and permeation properties, subcellular distribution and expression patterns. Functional KV channels assemble as tetramers consisting of pore-forming α-subunits, which include the KV1, KV2, KV3, KV4 and KV9 proteins, as well as accessory subunits that modify the gating properties of the coexpressed KV subunits. KV3.2 is a multipass membrane protein that regulates the voltage-dependent K^+ permeability of excitable membranes. Its tail may be influential in the targeting of the channel to specific subcellular compartments and/or the regulation of channel activity.

REFERENCES

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2. Luneau, C., et al. 1991. Shaw-like rat brain potassium channel cDNA's with divergent 3' ends. FEBS Lett. 288: 163-167.
3. Rudy, B., et al. 1992. Region-specific expression of a K^+ channel gene in brain. Proc. Natl. Acad. Sci. USA 89: 4603-4607.
4. Bobik, M., et al. 2004. Potassium channel subunit KV3.2 and the water channel aquaporin-4 are selectively localized to cerebellar pinceau. Brain Res. 1026: 168-178.
5. Yeung, S.Y., et al. 2005. Modulation of KV3 subfamily potassium currents by the sea anemone toxin BDS: significance for CNS and biophysical studies. J. Neurosci. 25: 8735-8745.
6. Yan, L., et al. 2005. *Stichodactyla helianthus* peptide, a pharmacological tool for studying KV3.2 channels. Mol. Pharmacol. 67: 1513-1521.
7. McDonald, A.J. and Mascagni, F. 2006. Differential expression of KV3.1b and KV3.2 potassium channel subunits in interneurons of the basolateral amygdala. Neuroscience 138: 537-547.
8. Song, Z.M., et al. 2006. Developmental changes in the expression of calbindin and potassium channel subunits KV3.1b and KV3.2 in mouse Renshaw cells. Neuroscience 139: 531-538.

CHROMOSOMAL LOCATION

Genetic locus: KCNC2 (human) mapping to 12q21.1.

PRODUCT

KV3.2 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 KV3.2 shRNA Plasmid (h): sc-62534-SH and KV3.2 shRNA (h) Lentiviral Particles: sc-62534-V as alternate gene silencing products.

For independent verification of KV3.2 (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-62534A, sc-62534B and sc-62534C.

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

KV3.2 siRNA (h) is recommended for the inhibition of KV3.2 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

KV3.2 (H-11): sc-514099 is recommended as a control antibody for monitoring of KV3.2 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 KV3.2 gene expression knockdown using RT-PCR Primer: KV3.2 (h)-PR: sc-62534-PR (20 µl, 555 bp). 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.