SANTA CRUZ BIOTECHNOLOGY, INC.

SK3 siRNA (h): sc-37033

BACKGROUND

Small-conductance, calcium-activated K^+ channels (SK channels) are activated in a voltage-independent manner, and they have a small unit conductance and high sensitivity to calcium. SK channels 1-3 contain intracellular N- and C-termini and six conserved transmembrane segments. SK1 expression is restricted to the brain whereas SK2 and SK3 are more widely expressed. SK channels influence most excitable cells and participate in afterhyperpolarization (AHP) and spike-frequency adaptation. Human SK3 is a 731 amino acid protein that is expressed in muscles upon denervation, and it is a component of the presynaptic compartment in mature neuromuscular junctions. SK3 may also play a regulatory role in synaptic transmission.

REFERENCES

1. Kohler, M., et al. 1996. Small-conductance, calcium-activated potassium channels from mammalian brain. Science 273: 1709-1174.
2. Imbert, G., et al. 1996. Cloning of the gene for spinocerebellar ataxia 2 reveals a locus with high sensitivity to expanded CAG/glutamine repeats. Nat. Genet. 14: 285-291.
3. Stocker, M., et al. 2000. Differential distribution of three Ca^{2+}-activated K^+ channel subunits, SK1, SK2, and SK3, in the adult rat central nervous system. Mol. Cell. Neurosci. 15: 476-493.
4. Rimini, R., et al. 2000. Quantitative expression analysis of the small conductance calcium-activated potassium channels, SK1, SK2 and SK3, in human brain. Brain Res. Mol. Brain Res. 85: 218-220.
5. Grunnet, M., et al. 2001. Pharmacological modulation of SK3 channels. Neuropharmacology 40: 879-887.
6. Roncarati, R., et al. 2001. Presynaptic localization of the small conductance calcium-activated potassium channel SK3 at the neuromuscular junction. Neuroscience 104: 253-262.

CHROMOSOMAL LOCATION

Genetic locus: KCNN3 (human) mapping to 1q21.3.

PRODUCT

SK3 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 SK3 shRNA Plasmid (h): sc-37033-SH and SK3 shRNA (h) Lentiviral Particles: sc-37033-V as alternate gene silencing products.

For independent verification of SK3 (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-37033A, sc-37033B and sc-37033C.

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

SK3 siRNA (h) is recommended for the inhibition of SK3 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor SK3 gene expression knockdown using RT-PCR Primer: SK3 (h)-PR: sc-37033-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.