



KCNMB2 siRNA (h): sc-78123

BACKGROUND

MaxiK channels are large conductance voltage and Ca^{2+} -activated potassium channels which are formed by tetramers of MaxiK α subunits, which create pores that are used for smooth muscle tone and neuronal excitability. These MaxiK α subunits have the ability to coassemble with MaxiK β subunits that are structurally related and are able to regulate the function of MaxiK α subunits. KCNMB2 (potassium large conductance calcium-activated channel, sub-family M, β member 2) is also known as BK β 2 (BK channel subunit β -2) and is a 235 amino acid MaxiK β subunit that is localized to the membrane with two transmembrane spanning domains, typical of MaxiK β subunits. KCNMB2 is expressed in a variety of tissues, with highest expression in ovary and lower expression in kidney, heart and brain. KCNMB2 is able to completely inactivate MaxiK channels by interacting with tetramers of MaxiK α subunits, thereby preventing the formation of potassium-permeable pores in MaxiK channels. KCNMB2 has a ball and chain structure consisting of an N-terminus anchored by a loop-helix motif that is connected to the 4-turn helix chain domain by an unfolded linker at the C-terminus. The N-terminal ball domain is responsible for inactivating MaxiK channels by obstructing the potassium conducting pore on the cytoplasmic surface, thus deactivating cellular excitability that is exhibited by MaxiK channels.

REFERENCES

1. Xia, X.M., et al. 1999. Molecular basis for the inactivation of Ca^{2+} - and voltage-dependent BK channels in adrenal chromaffin cells and rat Insulinoma tumor cells. *J. Neurosci.* 19: 5255-5264.
2. Wallner, M., et al. 1999. Molecular basis of fast inactivation in voltage and Ca^{2+} -activated K^+ channels: a transmembrane β -subunit homolog. *Proc. Natl. Acad. Sci. USA* 96: 4137-4142.
3. Uebele, V.N., et al. 2000. Cloning and functional expression of two families of β -subunits of the large conductance calcium-activated K^+ channel. *J. Biol. Chem.* 275: 23211-23218.
4. Online Mendelian Inheritance in Man, OMIM™. 2000. Johns Hopkins University, Baltimore, MD. MIM Number: 605214. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>

CHROMOSOMAL LOCATION

Genetic locus: KCNMB2 (human) mapping to 3q26.32.

PRODUCT

KCNMB2 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 KCNMB2 shRNA Plasmid (h): sc-78123-SH and KCNMB2 shRNA (h) Lentiviral Particles: sc-78123-V as alternate gene silencing products.

For independent verification of KCNMB2 (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-78123A, sc-78123B and sc-78123C.

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

KCNMB2 siRNA (h) is recommended for the inhibition of KCNMB2 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 KCNMB2 gene expression knockdown using RT-PCR Primer: KCNMB2 (h)-PR: sc-78123-PR (20 μl). Annealing temperature for the primers should be $55-60^\circ\text{C}$ and the extension temperature should be $68-72^\circ\text{C}$.

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.