

# KCNMB4 siRNA (h): sc-96190

## BACKGROUND

MaxiK channels are large conductance voltage and  $\text{Ca}^{2+}$ -activated potassium channels which are formed by tetramers of MaxiK $\alpha$  subunits, which create pores that are used for smooth muscle tone and neuronal excitability. These MaxiK $\alpha$  subunits have the ability to coassemble with MaxiK $\beta$  subunits that are structurally related and are able to regulate the function of MaxiK $\alpha$  subunits. KCNMB4 (potassium large conductance calcium-activated channel, subfamily M,  $\beta$  member 4), also known as Slo- $\beta$ -4 or Maxi K channel subunit  $\beta$ -4, is a 210 amino acid multi-pass membrane protein belonging to the KCNMB family. Predominantly expressed in brain, KCNMB4 is a regulatory subunit of the calcium activated potassium MaxiK $\alpha$  channel. KCNMB4 contributes to MaxiK $\alpha$  channel diversity by modulating calcium sensitivity and gating kinetics of MaxiK $\alpha$ .

## REFERENCES

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3. Brenner, R., et al. 2000. Cloning and functional characterization of novel large conductance calcium-activated potassium channel  $\beta$  subunits, hKCNMB3 and hKCNMB4. *J. Biol. Chem.* 275: 6453-6461.
4. Meera, P., et al. 2000. A neuronal  $\beta$  subunit (KCNMB4) makes the large conductance, voltage- and  $\text{Ca}^{2+}$ -activated  $\text{K}^+$  channel resistant to charybdotoxin and iberitoxin. *Proc. Natl. Acad. Sci. USA* 97: 5562-5567.
5. Jin, P., et al. 2002. Phosphorylation-dependent functional coupling of hSlo calcium-dependent potassium channel and its h $\beta$  4 subunit. *J. Biol. Chem.* 277: 10014-10020.
6. Jin, P., et al. 2002. Reciprocal modulation between the  $\alpha$  and  $\beta$  4 subunits of hSlo calcium-dependent potassium channels. *J. Biol. Chem.* 277: 43724-43729.
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## CHROMOSOMAL LOCATION

Genetic locus: KCNMB4 (human) mapping to 12q15.

## PRODUCT

KCNMB4 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  $\mu\text{M}$  solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see KCNMB4 shRNA Plasmid (h): sc-96190-SH and KCNMB4 shRNA (h) Lentiviral Particles: sc-96190-V as alternate gene silencing products.

For independent verification of KCNMB4 (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-96190A, sc-96190B and sc-96190C.

## STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at  $-20^\circ\text{C}$  with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at  $-20^\circ\text{C}$ , avoid contact with RNases and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330  $\mu\text{l}$  of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu\text{l}$  of RNase-free water makes a 10  $\mu\text{M}$  solution in a 10  $\mu\text{M}$  Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

KCNMB4 siRNA (h) is recommended for the inhibition of KCNMB4 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  $\mu\text{M}$  in 66  $\mu\text{l}$ . 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

KCNMB4 (B-6): sc-515712 is recommended as a control antibody for monitoring of KCNMB4 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-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  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 KCNMB4 gene expression knockdown using RT-PCR Primer: KCNMB4 (h)-PR: sc-96190-PR (20  $\mu\text{l}$ ). 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](http://www.scbt.com) for detailed protocols and support products.