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# MaxiK $\beta$ siRNA (r): sc-155999

## BACKGROUND

The KCNMB1 gene, located on chromosome 5q35.1, contains four exons and encodes the 191 amino-acid protein MaxiK $\beta$  subunit 1 (also designated calcium-activated potassium channel  $\beta$  subunit, BK channel  $\beta$  subunit, Slo- $\beta$  and KVCA $\beta$ ). MaxiK $\beta$  subunit 1 consists of two putative transmembrane domains, an extracellular loop containing three consensus sequences for N-linked glycosylation and four cysteine residues that might form disulfide bridges. One of four subunits in the MaxiK $\beta$  family, MaxiK $\beta$  subunit 1 is expressed predominantly in smooth muscle tissue but is also found in brain, liver and lymphatic tissues. MaxiK $\beta$  subunit 1 associates with MaxiK $\alpha$  to form a calcium-activated potassium channel (also designated MaxiK and BK channel) and increases the sensitivity of the MaxiK $\alpha$  to calcium and voltage. The  $\alpha/\beta$ 1 channel is the most sensitive of all Maxi channels to calcium. MaxiK $\beta$  plays an important role in vasoregulation by controlling the sensitivity of MaxiK channels to calcium, which leads to the proper amount of arterial relaxation.

## REFERENCES

1. Knaus, H.G., et al. 1994. Primary sequence and immunological characterization of  $\beta$ -subunit of high conductance Ca<sup>2+</sup>-activated K<sup>+</sup> channel from smooth muscle. *J. Biol. Chem.* 269: 17274-17278.
2. Tseng-Crank, J., et al. 1996. Cloning, expression, and distribution of a Ca<sup>2+</sup>-activated K<sup>+</sup> channel  $\beta$ -subunit from human brain. *Proc. Natl. Acad. Sci. USA* 93: 9200-9205.
3. Tanaka, Y., et al. 1997. Molecular constituents of MaxiK Ca channels in human coronary smooth muscle: predominant  $\alpha + \beta$  subunit complexes. *J. Physiol.* 502: 545-557.

## CHROMOSOMAL LOCATION

Genetic locus: Kcnmb1 (rat) mapping to 10q12.

## PRODUCT

MaxiK $\beta$  siRNA (r) 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see MaxiK $\beta$  shRNA Plasmid (r): sc-155999-SH and MaxiK $\beta$  shRNA (r) Lentiviral Particles: sc-155999-V as alternate gene silencing products.

For independent verification of MaxiK $\beta$  (r) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-155999A, sc-155999B and sc-155999C.

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

## APPLICATIONS

MaxiK $\beta$  siRNA (r) is recommended for the inhibition of MaxiK $\beta$  expression in rat 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  $\mu$ M in 66  $\mu$ 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

MaxiK $\beta$  (A-5): sc-377023 is recommended as a control antibody for monitoring of MaxiK $\beta$  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<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> 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<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MaxiK $\beta$  gene expression knockdown using RT-PCR Primer: MaxiK $\beta$  (r)-PR: sc-155999-PR (20  $\mu$ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Yang, Y., et al. 2013. Mechanisms underlying regional differences in the Ca<sup>2+</sup> sensitivity of BK<sub>Ca</sub> current in arteriolar smooth muscle. *J. Physiol.* 591: 1277-1293.

## 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.