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MaxiK β siRNA (m): sc-42514

BACKGROUND

The KCNMB1 gene, located on chromosome 5q35.1, contains 4 exons and encodes the 191 amino-acid protein MaxiK β subunit 1 (also designated calcium-activated potassium channel β subunit, BK channel β subunit, Slo- β and KVCA β). MaxiK β 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 β family, MaxiK β subunit 1 is expressed predominantly in smooth muscle tissue but is also found in brain, liver and lymphatic tissues. MaxiK β subunit 1 associates with MaxiK α to form a calcium-activated potassium channel (also designated MaxiK and BK channel) and increases the sensitivity of the MaxiK α to calcium and voltage. The α/β 1 channel is the most sensitive of all Maxi channels to calcium. MaxiK β 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 β -subunit of high conductance Ca²⁺-activated K⁺ channel from smooth muscle. *J. Biol. Chem.* 269: 17274-17278.
2. Tseng-Crank, J., et al. 1996. Cloning, expression, and distribution of a Ca²⁺-activated K⁺ channel β -subunit from human brain. *Proc. Natl. Acad. Sci. USA* 93: 9200-9205.
3. Tanaka, Y., et al. 1997. Molecular constituents of maxi KCa channels in human coronary smooth muscle: predominant $\alpha + \beta$ subunit complexes. *J. Physiol.* 502: 545-557.
4. Jiang, Z., et al. 1999. Human and rodent MaxiK channel β -subunit genes: cloning and characterization. *Genomics* 55: 57-67.
5. Wallner, M., et al. 1999. Molecular basis of fast inactivation in voltage and Ca²⁺-activated K⁺ channels: a transmembrane β -subunit homolog. *Proc. Natl. Acad. Sci. USA* 96: 4137-4142.
6. Brenner, R., et al. 2000. Cloning and functional characterization of novel large conductance calcium-activated potassium channel β subunits, hKCNMB3 and hKCNMB4. *J. Biol. Chem.* 275: 6453-6461.

CHROMOSOMAL LOCATION

Genetic locus: Kcnmb1 (mouse) mapping to 11 A4.

PRODUCT

MaxiK β siRNA (m) 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see MaxiK β shRNA Plasmid (m): sc-42514-SH and MaxiK β shRNA (m) Lentiviral Particles: sc-42514-V as alternate gene silencing products.

For independent verification of MaxiK β (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-42514A, sc-42514B and sc-42514C.

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

APPLICATIONS

MaxiK β siRNA (m) is recommended for the inhibition of MaxiK β expression in mouse 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 μ M in 66 μ 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 β (A-5): sc-377023 is recommended as a control antibody for monitoring of MaxiK β 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 κ BP-HRP: sc-516102 or m-IgG κ 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 κ BP-FITC: sc-516140 or m-IgG κ 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 MaxiK β gene expression knockdown using RT-PCR Primer: MaxiK β (m)-PR: sc-42514-PR (20 μ l). 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.