



## MaxiK $\beta$ (Y-16): sc-14753

### 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. MaxiK $\beta$  subunit 1, one of four subunits in the MaxiK $\beta$  family, is expressed predominately 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). MaxiK $\beta$  subunit 1 increases the sensitivity of the MaxiK $\alpha$  to calcium and voltage. The MaxiK $\alpha$ / $\beta$ 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 Maxi K Ca 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  $\beta$ -subunit genes: cloning and characterization. *Genomics* 55: 57-67.
5. Wallner, M, et al. 1999. Molecular basis of fast inactivation in voltage and Ca<sup>2+</sup>-activated K<sup>+</sup> channels: a transmembrane  $\beta$ -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  $\beta$ subunits, hKCNMB3 and hKCNMB4. *J. Biol. Chem.* 275: 6453-6461.
7. Brenner, R., et al. 2000. Vasoregulation by the  $\beta$ -1 subunit of the calcium-activated potassium channel. *Nature* 407: 870-876.

### CHROMOSOMAL LOCATION

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

### SOURCE

MaxiK $\beta$  (Y-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of MaxiK $\beta$  of mouse origin.

### STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

### PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-14753 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

### APPLICATIONS

MaxiK $\beta$  (Y-16) is recommended for detection of MaxiK $\beta$  of mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for MaxiK $\beta$  siRNA (m): sc-42514, MaxiK $\beta$  siRNA (r): sc-155999, MaxiK $\beta$  shRNA Plasmid (m): sc-42514-SH, MaxiK $\beta$  shRNA Plasmid (r): sc-155999-SH, MaxiK $\beta$  shRNA (m) Lentiviral Particles: sc-42514-V and MaxiK $\beta$  shRNA (r) Lentiviral Particles: sc-155999-V.

Molecular Weight of MaxiK $\beta$ : 22 kDa.

Molecular Weight of glycosylated MaxiK $\beta$ : 26-37 kDa.

### RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

### SELECT PRODUCT CITATIONS

1. Wang, X., et al. 2004. Opening of Ca<sup>2+</sup>-activated K<sup>+</sup> channels triggers early and delayed preconditioning against I/R injury independent of NOS in mice. *Am. J. Physiol. Heart Circ. Physiol.* 287: H2070-H2077.
2. Ohya, S., et al. 2005. Cardioprotective effects of estradiol include the activation of large-conductance Ca<sup>2+</sup>-activated K<sup>+</sup> channels in cardiac mitochondria. *Am. J. Physiol. Heart Circ. Physiol.* 289: H1635-H1642.

### 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) or our catalog for detailed protocols and support products.