

# MaxiK $\alpha$ (K-20): sc-14747

## BACKGROUND

The KCNMA1 gene, located on chromosome 10q22.3, encodes MaxiK $\alpha$  (also designated calcium-activated potassium channel, large conductance calcium- and voltage-dependent potassium channel  $\alpha$  subunit, Slo  $\alpha$  subunit and BKCA  $\alpha$  subunit). MaxiK $\alpha$  carboxyl terminal is spliced to form nine transcripts. MaxiK $\alpha$  is expressed in neurons and smooth muscle tissue. MaxiK $\alpha$  associates with MaxiK $\beta$  to form Ca<sup>2+</sup>-activated K<sup>+</sup> channels (also designated Maxi-K or BK channels). MaxiK $\alpha$  forms the potassium-permeable pore in these channels, which respond primarily to increases in intracellular calcium ion concentrations. Maxi-K channels are also known to interact with hormones, such as estradiol. MaxiK $\beta$  can regulate the sensitivity of MaxiK $\alpha$  to calcium. Maxi-K channels may be involved in cell shrinkage and caspase activation, which leads to pulmonary vascular smooth muscle cell apoptosis.

## REFERENCES

1. Tseng-Crank, J., et al. 1994. Cloning, expression, and distribution of functionally distinct Ca<sup>2+</sup>-activated K<sup>+</sup> channel isoforms from human brain. *Neuron* 13: 1315-1330.
2. Pallanck, L., et al. 1994. Cloning and characterization of human and mouse homologs of the *Drosophila* calcium-activated potassium channel gene, slowpoke. *Hum. Mol. Genet.* 3: 1239-1243.
3. Dhulipala, P.D., et al. 1999. Cloning and characterization of the promoters of the maxiK channel  $\alpha$  and  $\beta$  subunits. *Biochim. Biophys. Acta* 1444: 254-262.
4. Ramanathan, K., et al. 1999. A molecular mechanism for electrical tuning of cochlear hair cells. *Science* 283: 215-217.
5. Valverde, M.A., et al. 1999. Acute activation of MaxiK channels (hSlo) by estradiol binding to the  $\beta$  subunit. *Science* 285: 1929-1931.
6. Lippiat, J.D., et al. 2000. A residue in the intracellular vestibule of the pore is critical for gating and permeation in Ca<sup>2+</sup>-activated K<sup>+</sup> (BKCa) channels. *J. Physiol.* 529: 131-138.
7. Krick, S., et al. 2001. Activation of K<sup>+</sup> channels induces apoptosis in vascular smooth muscle cells. *Am. J. Physiol. Cell Physiol.* 280: C970-C979.

## CHROMOSOMAL LOCATION

Genetic locus: KCNMA1 (human) mapping to 10q22.3; Kcnma1 (mouse) mapping to 14 A3.

## SOURCE

MaxiK $\alpha$  (K-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of MaxiK $\alpha$  of human origin.

## 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-14747 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

MaxiK $\alpha$  (K-20) is recommended for detection of MaxiK $\alpha$  of mouse, rat and human 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).

MaxiK $\alpha$  (K-20) is also recommended for detection of MaxiK $\alpha$  in additional species, including canine, bovine, porcine and avian.

Suitable for use as control antibody for MaxiK $\alpha$  siRNA (h): sc-42511, MaxiK $\alpha$  siRNA (m): sc-42512, MaxiK $\alpha$  shRNA Plasmid (h): sc-42511-SH, MaxiK $\alpha$  shRNA Plasmid (m): sc-42512-SH, MaxiK $\alpha$  shRNA (h) Lentiviral Particles: sc-42511-V and MaxiK $\alpha$  shRNA (m) Lentiviral Particles: sc-42512-V.

Molecular Weight of MaxiK $\alpha$  native  $\alpha$  subunit: 125 kDa.

Molecular Weight of MaxiK $\alpha$  purified  $\alpha$  subunit: 65 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. Pucovsk, V., et al. 2006. Localisation, function and composition of primary Ca<sup>2+</sup> spark discharge region in isolated smooth muscle cells from guinea-pig mesenteric arteries. *Cell Calcium* 39: 113-129.

## STORAGE

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

## 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.



Try **MaxiK $\alpha$  (B-1): sc-374142**, our highly recommended monoclonal alternative to MaxiK $\alpha$  (K-20).