

KCNH3 (T-16): sc-168244

BACKGROUND

Neuronal and cardiac cells are excited by voltage-gated ion channels. Voltage-gated K⁺ channels in the plasma membrane control the repolarization and the frequency of action potentials in neurons, muscles and other excitable cells. Mutations interfering with potassium ion channels are known to cause a variety of disorders. A subunit of the potassium channel, KCNG3 (potassium voltage-gated channel subfamily G member 3) is a 436 amino acid protein that modulates channel activity and forms a heteromultimer with KV2.1, KV3.1 and KCNF1. KCNG3 contains an S4 domain that may serve as the voltage-sensor and is characterized by a series of positively charged amino acids at every third position. KCNG3 localizes to the membrane, however it must be associated with KV2.1 and possibly another partner to get inserted in the plasma membrane. KCNG3 is detected in testis, pancreas, lung, kidney, ovary, small intestine, colon, thymus, adrenal gland, spinal cord and in many parts of the brain, with the exception of the cerebellum.

REFERENCES

1. Sano, Y., et al. 2002. Molecular cloning and characterization of Kv6.3, a novel modulatory subunit for voltage-gated K⁺ channel Kv2.1. *FEBS Lett.* 512: 230-234.
2. Ottschytch, N., et al. 2002. Obligatory heterotetramerization of three previously uncharacterized Kv channel α -subunits identified in the human genome. *Proc. Natl. Acad. Sci. USA* 99: 7986-7991.
3. Yan, L., et al. 2004. Expression of voltage-gated potassium channels in human and rhesus pancreatic islets. *Diabetes* 53: 597-607.
4. Ottschytch, N., et al. 2005. Domain analysis of Kv6.3, an electrically silent channel. *J. Physiol.* 568: 737-747.
5. Fantozzi, I., et al. 2006. Bone morphogenetic protein-2 upregulates expression and function of voltage-gated K⁺ channels in human pulmonary artery smooth muscle cells. *Am. J. Physiol. Lung Cell Mol. Physiol.* 291: L993-L1004.
6. Börjesson, S.I., et al. 2008. Structure, function, and modification of the voltage sensor in voltage-gated ion channels. *Cell Biochem. Biophys.* 52: 149-174.
7. Pischalnikova, A.V., et al. 2009. The domain and conformational organization in potassium voltage-gated ion channels. *J. Neuroimmune Pharmacol.* 4: 71-82.
8. Mederos Y Schnitzler, M., et al. 2009. Mutation of histidine 105 in the T1 domain of the potassium channel Kv2.1 disrupts heteromerization with Kv6.3 and Kv6.4. *J. Biol. Chem.* 284: 4695-4704.
9. Moreno-Domínguez, A., et al. 2009. *De novo* expression of Kv6.3 contributes to changes in vascular smooth muscle cell excitability in a hypertensive mice strain. *J. Physiol.* 587: 625-640.

CHROMOSOMAL LOCATION

Genetic locus: KCN3 (human) mapping to 12q13.12; Kcnh3 (mouse) mapping to 15 F1.

SOURCE

KCNH3 (T-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping within a cytoplasmic domain of KCN3 of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-168244 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

KCNH3 (T-16) is recommended for detection of KCN3 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); non cross-reactive with other KCN3 family members.

KCNH3 (T-16) is also recommended for detection of KCN3 in additional species, including canine.

Suitable for use as control antibody for KCN3 siRNA (h): sc-95657, KCN3 siRNA (m): sc-146363, KCN3 shRNA Plasmid (h): sc-95657-SH, KCN3 shRNA Plasmid (m): sc-146363-SH, KCN3 shRNA (h) Lentiviral Particles: sc-95657-V and KCN3 shRNA (m) Lentiviral Particles: sc-146363-V.

Molecular Weight of KCN3: 117 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.

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 or our catalog for detailed protocols and support products.