SANTA CRUZ BIOTECHNOLOGY, INC.

TASK-1 (N-15): sc-11309

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

K^+ channels are divided into three subclasses reflecting the number of transmembrane segments (TMS), which are designated 6TMS, 4TMS and 2TMS. Members of the 4TMS class contain two distinct pore regions and include TWIK, TREK, TRAAK and TASK. TASK channels are highly sensitive to external pH in the physiological range. TASK-1 is expressed in brain and in rat heart, with high levels of expression in the right atrium. TASK-2, mainly expressed in kidney, is localized in cortical distal tubules and collecting ducts, suggesting a role in renal K^+ transport. TASK-3 from rat cerebellum shares 54% identity with TASK-1, but less than 30% identity with TASK-2 and other tandem pore K^+ channels.

REFERENCES

1. Fink, M., et al. 1996. Cloning, functional expression and brain localization of a novel unconventional outward rectifier K^+ channel. EMBO J. 15: 6854-6862.
2. Duprat, F., et al. 1997. TASK, a human background K^+ channel to sense external pH variations near physiological pH. EMBO J. 16: 5464-5471.
3. Cluzeaud, F., et al. 1998. Expression of TWIK-1, a novel weakly inward rectifying potassium channel in rat kidney. Am. J. Physiol. 275: C1602-C1609.
4. Fink, M., et al. 1998. A neuronal two P domain K^+ channel stimulated by arachidonic acid and polyunsaturated fatty acids. EMBO J. 17: 3297-3308.
5. Reyes, R., et al. 1998. Cloning and expression of a novel pH-sensitive two pore domain K^+ channel from human kidney. J. Biol. Chem. 273: 30863-30869.
6. Kim, Y., et al. 1999. TBAK-1 and TASK-1, two pore K^+ channel subunits: kinetic properties and expression in rat heart. Am. J. Physiol. 277: H1669-H1678.
7. Millar, J.A., et al. 2000. A functional role for the two pore domain potassium channel TASK-1 in cerebellar granule neurons. Proc. Natl. Acad. Sci. USA 97: 3614-3618.

CHROMOSOMAL LOCATION

Genetic locus: KCNK3 (human) mapping to 2p23.3; Kcnk3 (mouse) mapping to 5 B1.

SOURCE

TASK-1 (N-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of TASK-1 of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-11309 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

RESEARCH USE

For research use only, not for use in diagnostic procedures.

APPLICATIONS

TASK-1 (N-15) is recommended for detection of TASK-1 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).

TASK-1 (N-15) is also recommended for detection of TASK-1 in additional species, including canine and bovine.

Suitable for use as control antibody for TASK-1 siRNA (h): sc-42339, TASK-1 siRNA (m): sc-42340, TASK-1 shRNA Plasmid (h): sc-42339-SH, TASK-1 shRNA Plasmid (m): sc-42340-SH, TASK-1 shRNA (h) Lentiviral Particles: sc-42339-V and TASK-1 shRNA (m) Lentiviral Particles: sc-42340-V.

Molecular Weight of TASK-1: 45-65 kDa.

Positive Controls: MIA PaCa-2 cell lysate: sc-2285 or JAR cell lysate: sc-2276.

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. Yamamoto, Y., et al. 2002. TASK-1, TASK-2, TASK-3 and TRAAK immunoreactivities in the rat carotid body. Brain Res. 950: 304-307.
2. Rusznak, Z., et al. 2004. Differential distribution of TASK-1, TASK-2 and TASK-3 immunoreactivities in the rat and human cerebellum. Cell. Mol. Life Sci. 61: 1532-1542.
3. Gurney, A.M. and Hunter, E. 2005. The use of small interfering RNA to elucidate the activity and function of ion channel genes in an intact tissue. J. Pharmacol. Toxicol. Methods 51: 253-262.
4. Olschewski, A., et al. 2006. Impact of TASK-1 in human pulmonary artery smooth muscle cells. Circ. Res. 98: 1072-1080.
5. Kiyoshi, H., et al. 2006. Molecular and electrophysiological characteristics of K^+ conductance sensitive to acidic pH in aortic smooth muscle cells of WKY and SHR. Am. J. Physiol. Heart Circ. Physiol. 291: H2723-H2734.
6. Deng, P.Y., et al. 2009. $GABA_B$ receptor activation inhibits neuronal excitability and spatial learning in the entorhinal cortex by activating TREK-2 K^+ channels. Neuron 63: 230-243.

STORAGE

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