

TASK-3 (R-13): sc-11322

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% 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: Kcnk9 (mouse) mapping to 15 D3.

SOURCE

TASK-3 (R-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of TASK-3 of rat 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-11322 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

TASK-3 (R-13) is recommended for detection of TASK-3 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 TASK-3 siRNA (m): sc-42344, TASK-3 shRNA Plasmid (m): sc-42344-SH and TASK-3 shRNA (m) Lentiviral Particles: sc-42344-V.

Molecular Weight of TASK-3: 47 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. Yamamoto, Y., et al. 2003. Heterogeneous expression of TASK-3 and TRAAK in rat paraganglionic cells. *Histochem. Cell Biol.* 120: 335-339.
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. Rau, K.K., et al. 2006. Expression of TWIK-related acid sensitive K⁺ channels in capsaicin sensitive and insensitive cells of rat dorsal root ganglia. *Neuroscience* 141: 955-963.
4. Inoue, M., et al. 2008. Inhibition of TASK-1-like channels by muscarinic receptor stimulation in rat adrenal medullary cells. *J. Neurochem.* 106: 1804-1814.
5. Xiao, Z., et al. 2009. Noradrenergic depression of neuronal excitability in the entorhinal cortex via activation of TREK-2 K⁺ channels. *J. Biol. Chem.* 284: 10980-10991.
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.
7. Cadaveira-Mosquera, A., et al. 2012. Expression of K2P channels in sensory and motor neurons of the autonomic nervous system. *J. Mol. Neurosci.* 48: 86-96.

RESEARCH USE

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