

## KV3.1 (C-13): sc-23319

### BACKGROUND

The human voltage-gated potassium (KV) channel KV3.1 gene maps to chromosome 11p15.1 and encodes a protein that resembles *Drosophila* Shaw subfamily channel types. KV channels regulate neurotransmitter release, heart rate, Insulin secretion, neuronal excitability, epithelial electrolyte transport, smooth muscle contraction, and cell volume. KV channels are multimers that contain channel activity-dependent alpha subunits and modulatory  $\gamma$  subunits. Neuronal populations in the CNS coexpressing KV3.1 and KV3.3 influence fast repolarization of action potentials and enable neurons to fire repetitively at high frequencies. KV3 genes produce multiple splice variants in the 3' ends of respective transcript, which may influence normal spatial ion permeability of excitable membranes in the brain.

### REFERENCES

1. Online Mendelian Inheritance in Man, OMIM™. 1998. Johns Hopkins University, Baltimore, MD. MIM Number: 176258. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
2. Martens, J.R., et al. 1999. Modulation of KV channel  $\alpha/\beta$  subunit interactions. *Trends Cardiovasc. Med.* 9: 253-258.
3. Parameshwaran, S., et al. 2001. Expression of the Kv3.1 potassium channel in the avian auditory brainstem. *J. Neurosci.* 21: 485-494.
4. Espinosa, F., et al. 2001. Alcohol hypersensitivity, increased locomotion, and spontaneous myoclonus in mice lacking the potassium channels KV3.1 and Kv3.3. *J. Neurosci.* 21: 6657-6665.
5. Ozaita, A., et al. 2002. Differential subcellular localization of the two alternatively spliced isoforms of the KV3.1 potassium channel subunit in brain. *J. Neurophysiol.* 88: 394-408.
6. LocusLink Report (LocusID: 3746). <http://www.ncbi.nlm.nih.gov/LocusLink/>

### CHROMOSOMAL LOCATION

Genetic locus: KCNC1 (human) mapping to 11p15.1; Kcnc1 (mouse) mapping to 7 B4.

### SOURCE

KV3.1 (C-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of KV3.1 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-23319 P, (100  $\mu$ g 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.

### RESEARCH USE

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

### APPLICATIONS

KV3.1 (C-13) is recommended for detection of KV3.1 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).

KV3.1 (C-13) is also recommended for detection of KV3.1 in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for KV3.1 siRNA (h): sc-42720, KV3.1 siRNA (m): sc-42721, KV3.1 shRNA Plasmid (h): sc-42720-SH, KV3.1 shRNA Plasmid (m): sc-42721-SH, KV3.1 shRNA (h) Lentiviral Particles: sc-42720-V and KV3.1 shRNA (m) Lentiviral Particles: sc-42721-V.

### 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.

### PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.


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Try **KV3.1 (E-2): sc-514554**, our highly recommended monoclonal alternative to KV3.1 (C-13).