

# KV1.3 (C-15): sc-17241

## BACKGROUND

Voltage-gated K<sup>+</sup> channels in the plasma membrane control the repolarization and the frequency of action potentials in neurons, muscles, and other excitable cells. The KV gene family encodes more than 30 genes that comprise the subunits of the K<sup>+</sup> channels, and they vary in their gating and permeation properties, subcellular distribution, and expression patterns. Functional KV channels assemble as tetramers consisting of pore-forming  $\alpha$ -subunits (KV), which include the KV1, KV2, KV3, and KV4 proteins, and accessory or KV-subunits that modify the gating properties of the coexpressed KV subunits. Differences exist in the patterns of trafficking, biosynthetic processing, and surface expression of the major KV1 subunits (KV1.1, KV1.2, and KV1.4) expressed in rat and human brain, suggesting that the individual protein subunits are highly regulated to control for the assembly and formation of functional neuronal channels.

## REFERENCES

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- Veh, R.W., et al. 1995. Immunohistochemical localization of five members of the KV1 channel subunits: contrasting subcellular locations and neuron-specific co-localizations in rat brain. *Eur. J. Neurosci.* 7: 2189-2205.
- Shi, G., et al. 1996.  $\beta$  subunits promote K<sup>+</sup> channel surface expression through effects early in biosynthesis. *Neuron* 16: 843-852.
- Rhodes, K.J., et al. 1997. Association and colocalization of the KV $\beta$ 1 and KV $\beta$ 2  $\beta$ -subunits with KV1  $\alpha$ -subunits in mammalian brain K<sup>+</sup> channel complexes. *J. Neurosci.* 17: 8246-8258.
- Coleman, S.K., et al. 1999. Subunit composition of KV1 channels in human CNS. *J. Neurochem.* 73: 849-858.
- Manganas, L.N., et al. 2000. Subunit composition determines KV1 potassium channel surface expression. *J. Biol. Chem.* 275: 29685-29693.

## CHROMOSOMAL LOCATION

Genetic locus: KCNA3 (human) mapping to 1p13.3; Kcna3 (mouse) mapping to 3 F2.3.

## SOURCE

KV1.3 (C-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of KV1.3 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-17241 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.

## APPLICATIONS

KV1.3 (C-15) is recommended for detection of KV1.3 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).

KV1.3 (C-15) is also recommended for detection of KV1.3 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for KV1.3 siRNA (h): sc-42712, KV1.3 siRNA (m): sc-42713, KV1.3 shRNA Plasmid (h): sc-42712-SH, KV1.3 shRNA Plasmid (m): sc-42713-SH, KV1.3 shRNA (h) Lentiviral Particles: sc-42712-V and KV1.3 shRNA (m) Lentiviral Particles: sc-42713-V.

Molecular Weight of KV1.3: 67 kDa.

Positive Controls: HeLa nuclear extract: sc-2120.

## 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

- Liang, C.Z., et al. 2006. K channel expression in prostate epithelium and its implications in men with chronic prostatitis. *BJU Int.* 97: 190-192.
- Ren, Y.R., et al. 2008. Clofazimine inhibits human KV1.3 potassium channel by perturbing calcium oscillation in T lymphocytes. *PLoS ONE* 3: e4009.
- Kuras, Z., et al. 2012. Modulation of Kv1.3 channels by protein kinase A I in T lymphocytes is mediated by the disc large 1-tyrosine kinase Lck complex. *Am. J. Physiol., Cell Physiol.* 302: C1504-C1512.

## 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.


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Try **KV1.3 (G-9): sc-398855** or **KV1.3 (SS-02): sc-81891**, our highly recommended monoclonal alternatives to KV1.3 (C-15).