

# p-KV4.2 (Ser 438)-R: sc-135551-R

## 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. The mitogen-activated protein kinase ERK 2 phosphorylated KV4.2 at Thr 602, Thr 607 and Ser 616.

## REFERENCES

- Deal, K.K., et al. 1994. The brain KV1.1 potassium channel: *in vitro* and *in vivo* studies on subunit assembly and posttranslational processing. *J. Neurosci.* 14: 1666-1676.
- 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.
- Adams, J.P., et al. 2000. The A-type potassium channel KV4.2 is a substrate for the mitogen-activated protein kinase ERK. *J. Neurochem.* 75: 2277-2287.

## CHROMOSOMAL LOCATION

Genetic locus: KCND2 (human) mapping to 7q31.31; Kcnd2 (mouse) mapping to 6 A2.

## SOURCE

p-KV4.2-R (Ser 438) is a rabbit polyclonal antibody raised against a short amino acid sequence containing Ser 438 phosphorylated KV4.2 of human origin.

## STORAGE

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

## PRODUCT

Each vial contains 100  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-135551 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

p-KV4.2 (Ser 438)-R is recommended for detection of Ser 438 phosphorylated KV4.2 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:50-1:500), immunofluorescence (starting dilution 1:25, dilution range 1:25-1:250) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for KV4.2 siRNA (h): sc-42722, KV4.2 siRNA (m): sc-42723, KV4.2 siRNA (r): sc-156129, KV4.2 shRNA Plasmid (h): sc-42722-SH, KV4.2 shRNA Plasmid (m): sc-42723-SH, KV4.2 shRNA Plasmid (r): sc-156129-SH, KV4.2 shRNA (h) Lentiviral Particles: sc-42722-V, KV4.2 shRNA (m) Lentiviral Particles: sc-42723-V and KV4.2 shRNA (r) Lentiviral Particles: sc-156129-V.

Molecular Weight of p-KV4.2: 71 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Western Blotting Luminol Reagent: sc-2048 and Lambda Phosphatase: sc-200312A. 2) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## 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.