SANTA CRUZ BIOTECHNOLOGY, INC.

KVβ.3 (A-13): sc-51107

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The Power to Question

BACKGROUND

Voltage-gated K^+ 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 proteins that comprise the subunits of the K^+ 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 α 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. KVβ.3 is an accessory K^+ channel protein which regulates the activity of the pore-forming α subunit and alters the functional properties of Kv1.5. KVβ.3 localizes to the cytoplasm and is expressed in the brain, with highest expression detected in the cerebellum, and weakest expression seen in the frontal and temporal lobes. No KVβ.3 expression is detected in the heart, spinal cord, lung, liver, kidney, pancreas, placenta or skeletal muscle.

REFERENCES

1. 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.
2. 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.
3. Shi, G., et al. 1996. β subunits promote K^+ channel surface expression through effects early in biosynthesis. Neuron 16: 843-852.
4. Rhodes, K.J., et al. 1997. Association and co-localization of the KVβ1 and KVβ2 β subunits with KV1 α subunits in mammalian brain K^+ channel complexes. J. Neurosci. 17: 8246-8258.
5. Coleman, S.K., et al. 1999. Subunit composition of KV1 channels in human CNS. J. Neurochem. 73: 849-858.
6. Leicher, T., et al. 1999. Coexpression of the KCNA3B gene product with KV1.5 leads to a novel A-type potassium channel. J. Biol. Chem. 273: 35095-35101.
7. Manganas, L.N., et al. 2000. Subunit composition determines KV1 potassium channel surface expression. J. Biol. Chem. 275: 29685-29693.

CHROMOSOMAL LOCATION

Genetic locus: KCNAB3 (human) mapping to 17p13.1; Kcnab3 (mouse) mapping to 11 B3.

SOURCE

KVβ.3 (A-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of KVβ.3 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-51107 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

KVβ.3 (A-13) is recommended for detection of KVβ.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).

KVβ.3 (A-13) is also recommended for detection of KVβ.3 in additional species, including equine and canine.

Suitable for use as control antibody for KVβ.3 siRNA (h): sc-60905, KVβ.3 siRNA (m): sc-60906, KVβ.3 shRNA Plasmid (h): sc-60905-SH, KVβ.3 shRNA Plasmid (m): sc-60906-SH, KVβ.3 shRNA (h) Lentiviral Particles: sc-60905-V and KVβ.3 shRNA (m) Lentiviral Particles: sc-60906-V.

Molecular Weight of KVβ.3: 44 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204.

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.

STORAGE

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

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.