SANTA CRUZ BIOTECHNOLOGY, INC.

KV3.1 (E-2): sc-514554

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 α/β 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.

CHROMOSOMAL LOCATION

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

SOURCE

KV3.1 (E-2) is a mouse monoclonal antibody raised against amino acids 118-179 mapping within an internal region of KV3.1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

KV3.1 (E-2) is available conjugated to agarose (sc-514554 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-514554 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-514554 PE), fluorescein (sc-514554 FITC), Alexa Fluor® 488 (sc-514554 AF488), Alexa Fluor® 546 (sc-514554 AF546), Alexa Fluor® 594 (sc-514554 AF594) or Alexa Fluor® 647 (sc-514554 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-514554 AF680) or Alexa Fluor® 790 (sc-514554 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

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

APPLICATIONS

KV3.1 (E-2) is recommended for detection of KV3.1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], 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).

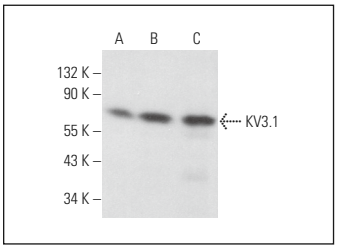
Suitable for use as control antibody for KV3.1 siRNA (h): sc-42720, KV3.1 siRNA (m): sc-42721, KV3.1 shRNA Plasmid (h): sc-42720-SH, KV3.1 shRNA Plasmid (m): sc-42721-SH, KV3.1 shRNA (h) Lentiviral Particles: sc-42720-V and KV3.1 shRNA (m) Lentiviral Particles: sc-42721-V.

Positive Controls: SJRH30 cell lysate: sc-2287, IMR-32 cell lysate: sc-2409 or mouse cerebellum extract: sc-2403.

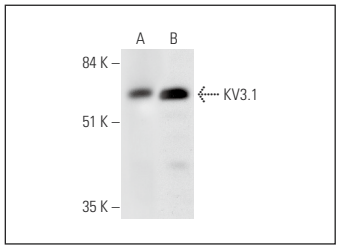
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



KV3.1 (E-2): sc-514554. Western blot analysis of KV3.1 expression in SJRH30 (**A**), IMR-32 (**B**) and Neuro-2A (**C**) whole cell lysates.



KV3.1 (E-2): sc-514554. Western blot analysis of KV3.1 expression in mouse cerebellum tissue extract (**A**) and SJRH30 whole cell lysate (**B**).

SELECT PRODUCT CITATIONS

1. Bezine, M., et al. 2018. Modulation of KV3.1b potassium channel level and intracellular potassium concentration in 158N murine oligodendrocytes and BV-2 murine microglial cells treated with 7-ketocholesterol, 24S-hydroxycholesterol or tetracosanoic acid (C24:0). Biochimie 153: 56-69.
2. Costa, R., et al. 2018. A potassium-selective current affected by micromolar concentrations of anion transport inhibitors. Cell. Physiol. Biochem. 45: 867-882.

RESEARCH USE

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