SANTA CRUZ BIOTECHNOLOGY, INC.

KV4.2 (H-5): sc-390571

SANTA CRUZ BIOTECHNOLOGY

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 genes 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 (KVα), which include the KV1, KV2, KV3, and KV4 proteins, and accessory or KVβ subunits that modify the gating properties of the coexpressed KVα subunits. Differences exist in the patterns of trafficking, biosynthetic processing and surface expression of the major KV1 subunits (KV1.1, KV1.2, KV1.4, KV1.5 and KV1.6) 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

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 colocalization of the Kvβ1 and Kvβ2 α-subunits with KV1 α-subunits in mammalian brain K^+ channel complexes. J. Neurosci. 17: 8246-8258.

CHROMOSOMAL LOCATION

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

SOURCE

KV4.2 (H-5) is a mouse monoclonal antibody raised against amino acids 406-630 mapping within a C-terminal cytoplasmic domain of KV4.2 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

KV4.2 (H-5) is available conjugated to agarose (sc-390571 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-390571 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-390571 PE), fluorescein (sc-390571 FITC), Alexa Fluor® 488 (sc-390571 AF488), Alexa Fluor® 546 (sc-390571 AF546), Alexa Fluor® 594 (sc-390571 AF594) or Alexa Fluor® 647 (sc-390571 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-390571 AF680) or Alexa Fluor® 790 (sc-390571 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

KV4.2 (H-5) is recommended for detection of KV4.2 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).

KV4.2 (H-5) is also recommended for detection of KV4.2 in additional species, including porcine.

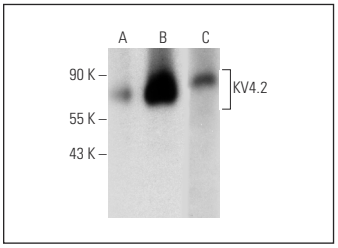
Suitable for use as control antibody for KV4.2 siRNA (h): sc-42722, KV4.2 siRNA (m): sc-42723, KV4.2 siRNA (r): sc-156129, KV4.2 shRNA Plasmid (h): sc-42722-SH, KV4.2 shRNA Plasmid (m): sc-42723-SH, KV4.2 shRNA Plasmid (r): sc-156129-SH, KV4.2 shRNA (h) Lentiviral Particles: sc-42722-V, KV4.2 shRNA (m)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

Molecular Weight of KV4.2: 71 kDa.

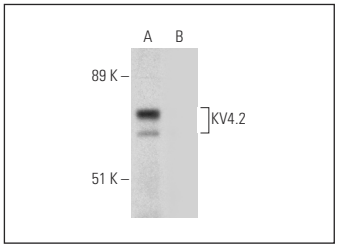
Molecular Weight of KV4.3: 73 kDa.

Positive Controls: rat brain extract: sc-2392, mouse brain extract: sc-2253 or human hippocampus tissue extract.

DATA



KV4.2 (H-5): sc-390571. Western blot analysis of KV4.2 expression in rat brain (**A**), mouse brain (**B**) and human hippocampus (**C**) tissue extracts.



KV4.2 (H-5): sc-390571. Western blot analysis of KV4.2 phosphorylation in untreated (**A**) and lambda protein phosphatase (sc-200312A) treated (**B**) human brain tissue extracts.

SELECT PRODUCT CITATIONS

1. Durak, A., et al. 2020. Titin and CK2α are new intracellular targets in acute Insulin application-associated benefits on electrophysiological parameters of left ventricular cardiomyocytes from Insulin-resistant metabolic syndrome rats. Cardiovasc. Drugs Ther. 34: 487-501.
2. Park, H.R., et al. 2023. Novel psychopharmacological herbs relieve behavioral abnormalities and hippocampal dysfunctions in an animal model of post-traumatic stress disorder. Nutrients 15: 3815.

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.