SANTA CRUZ BIOTECHNOLOGY, INC.

KCNQ2 (C-4): sc-271852

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Epilepsy affects about 0.5% of the world's population and has a large genetic component. Epilepsy results from an electrical hyperexcitability in the central nervous system. Potassium channels are important regulators of electrical signaling, determining the firing properties and responsiveness of a variety of neurons. Benign familial neonatal convulsions (BFNC), an autosomal dominant epilepsy of infancy, has been shown to be caused by mutations in the KCNQ2 or the KCNQ3 potassium channel genes. KCNQ2 and KCNQ3 are voltage-gated potassium channel proteins with six putative transmembrane domains. Both proteins display a broad distribution within the brain, with expression patterns that largely overlap.

REFERENCES

1. Singh, N.A., et al. 1998. A novel potassium channel gene, KCNQ2, is mutated in an inherited epilepsy of newborns. Nat. Genet. 18: 25-29.
2. Charlier, C., et al. 1998. A pore mutation in a novel KQT-like potassium channel gene in an idiopathic epilepsy family. Nat. Genet. 18: 53-55.
3. Schroeder, B.C., et al. 1998. Moderate loss of function of cyclic-AMP-modulated KCNQ2/KCNQ3 K^+ channels causes epilepsy. Nature 396: 687-690.
4. Biervert, C., et al. 1998. A potassium channel mutation in neonatal human epilepsy. Science 279: 403-406.
5. Wang, H.S., et al. 1998. KCNQ2 and KCNQ3 potassium channel subunits: molecular correlates of the M-channel. Science 282: 1890-1893.
6. Tinel, N., et al. 1998. The KCNQ2 potassium channel: splice variants, functional and developmental expression. Brain localization and comparison with KCNQ3. FEBS Lett. 438: 171-176.

CHROMOSOMAL LOCATION

Genetic locus: KCNQ2 (human) mapping to 20q13.33; Kcnq2 (mouse) mapping to 2 H4.

SOURCE

KCNQ2 (C-4) is a mouse monoclonal antibody raised against amino acids 641-780 mapping near the C-terminus of KCNQ2 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.

KCNQ2 (C-4) is available conjugated to agarose (sc-271852 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-271852 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271852 PE), fluorescein (sc-271852 FITC), Alexa Fluor® 488 (sc-271852 AF488), Alexa Fluor® 546 (sc-271852 AF546), Alexa Fluor® 594 (sc-271852 AF594) or Alexa Fluor® 647 (sc-271852 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271852 AF680) or Alexa Fluor® 790 (sc-271852 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

RESEARCH USE

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

APPLICATIONS

KCNQ2 (C-4) is recommended for detection of KCNQ2 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 KCNQ2 siRNA (h): sc-35747, KCNQ2 siRNA (m): sc-35748, KCNQ2 shRNA Plasmid (h): sc-35747-SH, KCNQ2 shRNA Plasmid (m): sc-35748-SH, KCNQ2 shRNA (h) Lentiviral Particles: sc-35747-V and KCNQ2 shRNA (m) Lentiviral Particles: sc-35748-V.

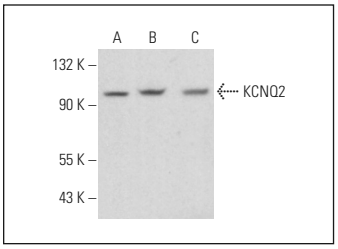
Molecular Weight of KCNQ2: 120 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210, Hep G2 cell lysate: sc-2227 or EOC 20 whole cell lysate: sc-364187.

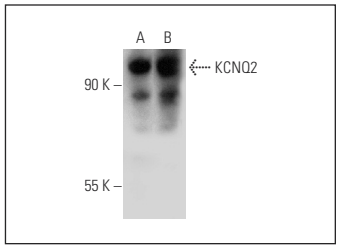
RECOMMENDED SUPPORT REAGENTS

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



KCNQ2 (C-4): sc-271852. Western blot analysis of KCNQ2 expression in Hep G2 (**A**), SK-BR-3 (**B**) and C6 (**C**) whole cell lysates.



KCNQ2 (C-4): sc-271852. Western blot analysis of KCNQ2 expression in EOC 20 (**A**) and NIH/3T3 (**B**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Hu, F., et al. 2019. Inhibition of HSP70 suppresses neuronal hyperexcitability and attenuates epilepsy by enhancing A-type potassium current. Cell Rep. 26: 168-181.e4.

STORAGE

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