SANTA CRUZ BIOTECHNOLOGY, INC.

KCNQ2 (F-3): sc-365115

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. Schroeder, B.C., et al. 1998. Moderate loss of function of cyclic-AMP-modulated KCNQ2/KCNQ3 K^+ channels causes epilepsy. Nature 396: 687-690.
3. Biervert, C., et al. 1998. A potassium channel mutation in neonatal human epilepsy. Science 279: 403-406.
4. Yang, W.P., et al. 1998. Functional expression of two KvLQT1-related potassium channels responsible for an inherited idiopathic epilepsy. J. Biol. Chem. 273: 19419-19423.
5. 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.
6. Wang, H.S., et al. 1998. KCNQ2 and KCNQ3 potassium channel subunits: molecular correlates of the M-channel. Science 282: 1890-1893.
7. 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.

SOURCE

KCNQ2 (F-3) 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_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

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 for detailed protocols and support products.

APPLICATIONS

KCNQ2 (F-3) is recommended for detection of KCNQ2 of 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 shRNA Plasmid (h): sc-35747-SH and KCNQ2 shRNA (h) Lentiviral Particles: sc-35747-V.

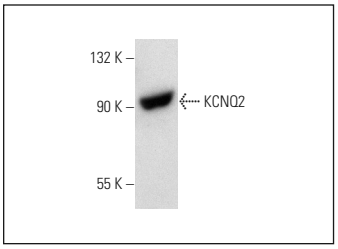
Molecular Weight of KCNQ2: 120 kDa.

Positive Controls: CCD-1064Sk cell lysate: sc-2263.

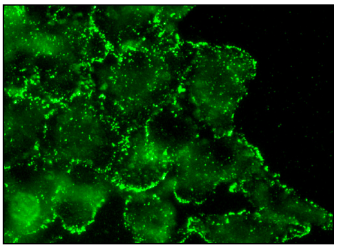
RECOMMENDED SUPPORT REAGENTS

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 (F-3): sc-365115. Western blot analysis of KCNQ2 expression in CCD-1064Sk whole cell lysate.



KCNQ2 (F-3): sc-365115. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Harada, K., et al. 2018. Expression and regulation of M-type K^+ channel in PC-12 cells and rat adrenal medullary cells. Cell Tissue Res. 372: 457-468.
2. Harada, K., et al. 2018. Correction to: expression and regulation of M-type K^+ channel in PC12 cells and rat adrenal medullary cells. Cell Tissue Res. 372: 629.

RESEARCH USE

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