SANTA CRUZ BIOTECHNOLOGY, INC.

KCNE1 (G-10): sc-393575

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. KCNE1 and KCNE2 are two single transmembrane domain β subunits of the delayed rectifier potassium channel IKr. In cardiac tissue, KCNE2 (also known as MiRP1) assembles with HERG, the pore-forming a subunit of IKr. In the brain, KCNE2 associates with KCNQ2 and accelerates the dissociation of KCNQ2 from the KCNQ2-KCNQ3 complex. KCNE2 also regulates the current amplitude and gating properties of the KCNQ1 K^+ channel, and may assemble with KCNQ1 in the stomach to aid in K^+ recycling, which is necessary for gastric acid secretion. The gene encoding human KCNE2 maps to chromosome 21q22.11. Missense mutations in the gene for KCNE2 result in congenital long QT syndrome and drug-induced cardiac arrhythmia.

REFERENCES

1. Takumi, T., et al. 1988. Cloning of a membrane protein that induces a slow voltage-gated potassium current. Science 242: 1042-1045.
2. Wang, Q., et al. 1996. Positional cloning of a novel potassium channel gene: KVLQT1 mutations cause cardiac arrhythmias. Nat. Genet. 12: 17-23.
3. Abbott, G.W., et al. 1999. MiRP1 forms Ikr potassium channels with Herg and is associated with cardiac arrhythmia. Cell 97: 175-187.
4. Schroeder, B.C., et al. 2000. A constitutively open potassium channel formed by KCNQ1 and KCNE3. Nature 13: 196-199.
5. Sesti, F., et al. 2000. A common polymorphism associated with antibiotic-induced cardiac arrythmia. Proc. Natl. Acad. Sci. USA 97: 10613-10618.

CHROMOSOMAL LOCATION

Genetic locus: Kcne1 (mouse) mapping to 16 C4.

SOURCE

KCNE1 (G-10) is a mouse monoclonal antibody raised against amino acids 1-123 mapping at the N-terminus of KCNE1 of mouse 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.

KCNE1 (G-10) is available conjugated to agarose (sc-393575 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-393575 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-393575 PE), fluorescein (sc-393575 FITC), Alexa Fluor® 488 (sc-393575 AF488), Alexa Fluor® 546 (sc-393575 AF546), Alexa Fluor® 594 (sc-393575 AF594) or Alexa Fluor® 647 (sc-393575 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-393575 AF680) or Alexa Fluor® 790 (sc-393575 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

KCNE1 (G-10) is recommended for detection of KCNE1 of mouse and rat 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 KCNE1 siRNA (m): sc-42500, KCNE1 shRNA Plasmid (m): sc-42500-SH and KCNE1 shRNA (m) Lentiviral Particles: sc-42500-V.

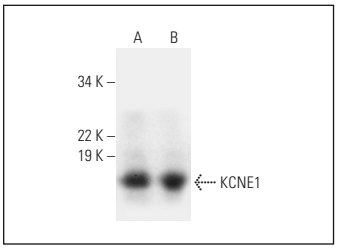
Molecular Weight of KCNE1: 14 kDa.

Positive Controls: rat heart extract: sc-2393 or mouse heart extract: sc-2254.

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



KCNE1 (G-10): sc-393575. Western blot analysis of KCNE1 expression in rat heart (**A**) and mouse heart (**B**) tissue extracts.

SELECT PRODUCT CITATIONS

1. Wang, X. and Fitts, R.H. 2020. Cardiomyocyte slowly activating delayed rectifier potassium channel: regulation by exercise and β-adrenergic signaling. J. Appl. Physiol. 128: 1177-1185.
2. Olgar, Y., et al. 2022. Insulin acts as an atypical KCNQ1/KCNE1-current activator and reverses long QT in Insulin-resistant aged rats by accelerating the ventricular action potential repolarization through affecting the β_3-adrenergic receptor signaling pathway. J. Cell. Physiol. 237: 1353-1371.

RESEARCH USE

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

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA