SANTA CRUZ BIOTECHNOLOGY, INC.

KV1.4 (F-20): sc-16179

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.

CHROMOSOMAL LOCATION

Genetic locus: KCNA4 (human) mapping to 11p14.1; Kcna4 (mouse) mapping to 2 E3.

SOURCE

KV1.4 (F-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of KV1.4 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-16179 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

RESEARCH USE

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

APPLICATIONS

KV1.4 (F-20) is recommended for detection of KV1.4 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

KV1.4 (F-20) is also recommended for detection of KV1.4 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for KV1.4 siRNA (h): sc-42714, KV1.4 siRNA (m): sc-42715, KV1.4 shRNA Plasmid (h): sc-42714-SH, KV1.4 shRNA Plasmid (m): sc-42715-SH, KV1.4 shRNA (h) Lentiviral Particles: sc-42714-V and KV1.4 shRNA (m) Lentiviral Particles: sc-42715-V.

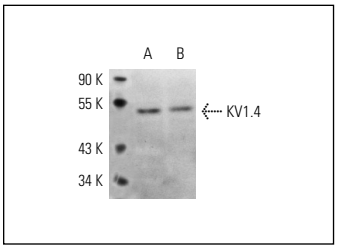
Molecular Weight of KV1.4: 53 kDa.

Positive Controls: SK-N-SH cell lysate: sc-2410 or U-87 MG cell lysate: sc-2411.

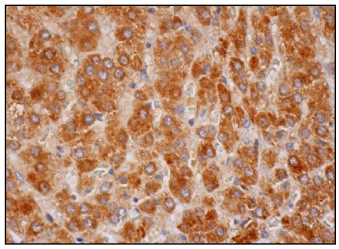
RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 4) Immunohistochemistry: use ImmunoCruz™: sc-2053 or ABC: sc-2023 goat IgG Staining Systems.

DATA



KV1.4 (F-20): sc-16179. Western blot analysis of KV1.4 expression in SK-N-SH (**A**) and U-87 MG (**B**) whole cell lysates.



KV1.4 (F-20): sc-16179. Immunoperoxidase staining of formalin fixed, paraffin-embedded human adrenal gland tissue showing cytoplasmic staining of glandular cells.

SELECT PRODUCT CITATIONS

1. Hubball, A.W., et al. 2012. Voltage-gated potassium channel KV1 autoantibodies in patients with chagasic gut dysmotility and distribution of KV1 channels in human enteric neuromusculature (autoantibodies in GI dysmotility). Neurogastroenterol. Motil. 24: 719-728, e344.
2. Torres-Jacome, J., et al. 2013. Improvement of the metabolic status recovers cardiac potassium channel synthesis in experimental diabetes. Acta Physiol. 207: 447-459.

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 or our catalog for detailed protocols and support products.