SANTA CRUZ BIOTECHNOLOGY, INC.

SK1 (A-13): sc-17991

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Small-conductance, calcium-activated K^+ channels (SK channels) are activated in a voltage-independent manner, and have a small unit conductance and high sensitivity to calcium. Structural characteristics of SK channels include intracellular N- and C-termini and six conserved transmembrane segments. SK channels aid in afterhyperpolarization and spike-frequency adaptation. SK1 expression is most abundant in the brain, whereas SK2 and SK3 are more widely expressed throughout peripheral tissues. Alternative splicing of human SK1 results in two truncated variants with diminished calmodulin binding. The three isoforms of human SK1 include the full-length isoform, SK1-34b and SK1-25b. The full-length isoform is the most predominant form of SK1 in human hippocampus, while the SK1-34b isoform is the most abundant form in human reticulocytes. Human SK2 is the most predominant SK channel in the liver and pituitary gland. Human SK3 is a 731 amino acid protein that is expressed in muscles upon denervation, and is a component of the presynaptic compartment in mature neuromuscular junctions. SK3 may also play a regulatory role in synaptic transmission.

REFERENCES

1. Imbert, G., et al. 1996. Cloning of the gene for spinocerebellar ataxia 2 reveals a locus with high sensitivity to expanded CAG/glutamine repeats. Nat. Genet. 14: 285-291.
2. Kohler, M., et al. 1996. Small-conductance, calcium-activated potassium channels from mammalian brain. Science 273: 1709-1714.
3. Rimini, R., et al. 2000. Quantitative expression analysis of the small conductance calcium-activated potassium channels, SK1, SK2 and SK3, in human brain. Brain Res. Mol. Brain Res. 85: 218-220.
4. Stocker, M., et al. 2000. Differential distribution of three Ca^{2+}-activated K^+ channel subunits, SK1, SK2, and SK3, in the adult rat central nervous system. Mol. Cell. Neurosci. 15: 476-493.
5. Grunnet, M., et al. 2001. Pharma-cological modulation of SK3 channels. Neuropharmacology 40: 879-887.
6. Zhang, B.M, et al. 2001. Calmodulin binding to the C-terminus of the small-conductance Ca^{2+}-activated K^+ channel hSK1 is affected by alternative splicing. Biochemistry 20: 3189-3195.
7. Roncarati, R., et al. 2001. Presynaptic localization of the small conductance calcium-activated potassium channel SK3 at the neuromuscular junction. Neuroscience 104: 253-262.

CHROMOSOMAL LOCATION

Genetic locus: KCNN1 (human) mapping to 19p13.11; Kcnn1 (mouse) mapping to 8 B3.3.

SOURCE

SK1 (A-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of SK1 of human origin.

RESEARCH USE

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

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-17991 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

SK1 (A-13) is recommended for detection of SK1 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for SK1 siRNA (h): sc-36494, SK1 siRNA (m): sc-36495, SK1 shRNA Plasmid (h): sc-36494-SH, SK1 shRNA Plasmid (m): sc-36495-SH, SK1 shRNA (h) Lentiviral Particles: sc-36494-V and SK1 shRNA (m) Lentiviral Particles: sc-36495-V.

Molecular Weight (predicted) of SK1 isoforms: 60/62 kDa.

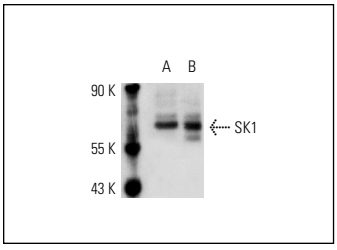
Molecular Weight (observed) of SK1: 66 kDa.

Positive Controls: Mouse brain extract: sc-2253 or rat brain extract: sc-2392.

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.

DATA



SK1 (A-13): sc-17991. Western blot analysis of SK1 expression in rat brain (**A**) and mouse brain (**B**) tissue extracts.

STORAGE

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