SANTA CRUZ BIOTECHNOLOGY, INC.

Na^+ CP type IIα (S-15): sc-16033

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Voltage-gated sodium channels are selective ion channels that regulate the permeability of sodium ions in excitable cells. During the propagation of an action potential, sodium channels allow an influx of sodium ions, which rapidly depolarize the cell. The three glycoproteins that comprise the voltage-gated sodium channel proteins include a pore-forming α subunit, a noncovalently associated β1 subunit and a disulfide-linked β2 subunit. The two β subunits regulate the level of channel expression, modulate gating and function as cell adhesion molecules for cellular aggregation and cytoskeleton interaction. The α subunits of sodium channels type I and III are predominantly expressed in neuronal cell bodies and proximal processes, while type IIα subunits are more abundant along axons. The β1 subunit of sodium channel type I is expressed in brain, skeletal and cardiac muscle. In the brain, β1 and β2 are highly expressed in Purkinje cells, and β1 is also expressed in the pyramidal cells of the deep cerebellar nuclei. Impaired voltage-gated sodium channels lead to a number of diseases including myotonia.

REFERENCES

1. Rosenfeld, J., et al. 1997. A novel muscle sodium channel mutation causes painful congenital myotonia. Ann. Neurol. 42: 811-814.
2. Catterall, W.A. 1999. Molecular properties of brain sodium channels: an important target for anticonvulsant drugs. Adv. Neurol. 79: 441-456.
3. Whitaker, W.R., et al. 2000. Distribution of voltage-gated sodium channel α subunit and β subunit mRNAs in human hippocampal formation, cortex, and cerebellum. J. Comp. Neurol. 422: 123-139.
4. Isom, L.L. 2001. Sodium channel β subunits: anything but auxiliary. Neuroscientist 7: 42-54.
5. Whitaker, W.R., et al. 2001. Comparative distribution of voltage-gated sodium channel proteins in human brain. Mol. Brain Res. 88: 37-53.

CHROMOSOMAL LOCATION

Genetic locus: SCN2A (human) mapping to 2q24.3; Scn2a1 (mouse) mapping to 2 C1.3.

SOURCE

Na^+ CP type IIα (S-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of Na^+ CP type IIα 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-16033 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

Na^+ CP type IIα (S-15) is recommended for detection of sodium channel type IIα of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

Na^+ CP type IIα (S-15) is also recommended for detection of sodium channel type IIα in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for Na^+ CP type IIα siRNA (h): sc-42644, Na^+ CP type IIα siRNA (m): sc-42645, Na^+ CP type IIα shRNA Plasmid (h): sc-42644-SH, Na^+ CP type IIα shRNA Plasmid (m): sc-42645-SH, Na^+ CP type IIα shRNA (h) Lentiviral Particles: sc-42644-V and Na^+ CP type IIα shRNA (m) Lentiviral Particles: sc-42645-V.

Positive Controls: Mouse brain extract: sc-2253.

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) 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.

SELECT PRODUCT CITATIONS

1. Ulzheimer, J.C., et al. 2004. Altered expression of ion channel isoforms at the node of Ranvier in P0-deficient myelin mutants. Mol. Cell. Neurosci. 25: 83-94.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.