

# Na<sup>+</sup> CP type III $\beta$ (G-21): sc-133801

## BACKGROUND

Voltage-gated Na<sup>+</sup> channels regulate the permeability of excitable cells to sodium ions. During the propagation of an action potential, Na<sup>+</sup> channels allow an influx of sodium ions, which rapidly depolarize the cell. The sodium channel protein is comprised of one  $\alpha$  subunit and two  $\beta$  subunits. The Na<sup>+</sup> CP type I and Na<sup>+</sup> CP type II $\alpha$  subunits are expressed in adult brain. Na<sup>+</sup> CP type III $\alpha$  is expressed in embryonic brain, but not in adult brain. Na<sup>+</sup> CP type III $\beta$  is a 215 amino acid, single-pass type I membrane protein that modulates sodium channel gating kinetics and inactivates the channel opening more slowly than the I $\beta$  subunit. It has an extracellular N-terminal domain, an N-terminal signal sequence, a single membrane-spanning region and a C-terminal cytoplasmic region. Expression of Na<sup>+</sup> CP type III $\beta$  is upregulated in response to DNA damage. In association with Neurofascin, Na<sup>+</sup> CP type III $\beta$  may target the sodium channels to nodes of Ranvier of developing axons and retain these channels at the nodes in mature myelinated axons.

## REFERENCES

- Crabbe, J.C., Belknap, J.K., Buck, K.J. and Metten, P. 1997. Use of recombinant inbred strains for studying genetic determinants of responses to alcohol. *Alcohol Alcohol. Suppl.* 2: 67-71.
- Morgan, K., Stevens, E.B., Shah, B., Cox, P.J., Dixon, A.K., Lee, K., Pinnock, R.D., Hughes, J., Richardson, P.J., Mizuguchi, K. and Jackson, A.P. 2000.  $\beta$  3: an additional auxiliary subunit of the voltage-sensitive sodium channel that modulates channel gating with distinct kinetics. *Proc. Natl. Acad. Sci. USA* 97: 2308-2313.
- Online Mendelian Inheritance in Man, OMIM<sup>™</sup>. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 608214. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
- Albrieux, M., Platel, J.C., Dupuis, A., Villaz, M. and Moody, W.J. 2004. Early expression of sodium channel transcripts and sodium current by Cajal-Retzius cells in the preplate of the embryonic mouse neocortex. *J. Neurosci.* 24: 1719-1725.
- Adachi, K., Toyota, M., Sasaki, Y., Yamashita, T., Ishida, S., Ohe-Toyota, M., Maruyama, R., Hinoda, Y., Saito, T., Imai, K., Kudo, R. and Tokino, T. 2004. Identification of SCN3B as a novel p53-inducible proapoptotic gene. *Oncogene* 23: 7791-7798.

## CHROMOSOMAL LOCATION

Genetic locus: SCN3B (human) mapping to 11q24.1; Scn3b (mouse) mapping to 9 A5.1.

## 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](http://www.scbt.com) or our catalog for detailed protocols and support products.

## SOURCE

Na<sup>+</sup> CP type III $\beta$  (G-21) is an affinity purified rabbit polyclonal antibody raised against synthetic Na<sup>+</sup> CP type III $\beta$  peptide of human origin.

## PRODUCT

Each vial contains 50  $\mu$ g IgG in 500  $\mu$ l PBS with < 0.1% sodium azide, 0.1% gelatin and < 0.02% sucrose.

## APPLICATIONS

Na<sup>+</sup> CP type III $\beta$  (G-21) is recommended for detection of Na<sup>+</sup> CP type III $\beta$  of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Na<sup>+</sup> CP type III $\beta$  siRNA (h): sc-61136, Na<sup>+</sup> CP type III $\beta$  siRNA (m): sc-61137, Na<sup>+</sup> CP type III $\beta$  shRNA Plasmid (h): sc-61136-SH, Na<sup>+</sup> CP type III $\beta$  shRNA Plasmid (m): sc-61137-SH, Na<sup>+</sup> CP type III $\beta$  shRNA (h) Lentiviral Particles: sc-61136-V and Na<sup>+</sup> CP type III $\beta$  shRNA (m) Lentiviral Particles: sc-61137-V.

Molecular Weight of Na<sup>+</sup> CP type III $\beta$ : 47 kDa.

Positive Controls: human fetal brain whole cell lysate.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker<sup>™</sup> compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker<sup>™</sup> 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).

## RESEARCH USE

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