



# Na<sup>+</sup> CP type II $\beta$ siRNA (h): sc-96252

## 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 depolarizes the cell. Na<sup>+</sup> CP type II $\beta$  (sodium channel, voltage-gated, type II, beta), also known as SCN2B, is a 215 amino acid single-pass type I membrane protein that plays a critical role in the expression and assembly of the heterotrimeric complex of the sodium channel and interacts with Tenascin-R to influence the clustering and regulation of sodium channels at nodes of Ranvier. Expressed specifically in brain, Na<sup>+</sup> CP type II $\beta$  contains one Ig-like C2-type (immunoglobulin-like) domain and is encoded by a gene that maps to human chromosome 11q23.3 and mouse chromosome 9 A5.2.

## REFERENCES

1. Isom, L.L., et al. 1995. Structure and function of the  $\beta$ 2 subunit of brain sodium channels, a transmembrane glycoprotein with a CAM motif. *Cell* 83: 433-442.
2. Jones, J.M., et al. 1996. SCN2B, a voltage-gated sodium channel  $\beta$ 2 gene on mouse chromosome 9. *Genomics* 34: 258-259.
3. Eubanks, J., et al. 1997. Structure and chromosomal localization of the  $\beta$ 2 subunit of the human brain sodium channel. *Neuroreport* 8: 2775-2779.
4. Bolino, A., et al. 1998. Exclusion of the SCN2B gene as candidate for CMT4B. *Eur. J. Hum. Genet.* 6: 629-634.
5. Chen, C., et al. 2002. Reduced sodium channel density, altered voltage dependence of inactivation, and increased susceptibility to seizures in mice lacking sodium channel  $\beta$ 2 subunits. *Proc. Natl. Acad. Sci. USA* 99: 17072-17077.
6. Kim, D.Y., et al. 2007. BACE1 regulates voltage-gated sodium channels and neuronal activity. *Nat. Cell Biol.* 9: 755-764.
7. Online Mendelian Inheritance in Man, OMIM™. 2008. Johns Hopkins University, Baltimore, MD. MIM Number: 601327. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>

## CHROMOSOMAL LOCATION

Genetic locus: SCN2B (human) mapping to 11q23.3.

## PRODUCT

Na<sup>+</sup> CP type II $\beta$  siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Na<sup>+</sup> CP type II $\beta$  shRNA Plasmid (h): sc-96252-SH and Na<sup>+</sup> CP type II $\beta$  shRNA (h) Lentiviral Particles: sc-96252-V as alternate gene silencing products.

For independent verification of Na<sup>+</sup> CP type II $\beta$  (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-96252A, sc-96252B and sc-96252C.

## STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

Na<sup>+</sup> CP type II $\beta$  siRNA (h) is recommended for the inhibition of Na<sup>+</sup> CP type II $\beta$  expression in human cells.

## SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10  $\mu$ M in 66  $\mu$ l. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Na<sup>+</sup> CP type II $\beta$  gene expression knockdown using RT-PCR Primer: Na<sup>+</sup> CP type II $\beta$  (h)-PR: sc-96252-PR (20  $\mu$ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Bon, E., et al. 2016. SCN4B acts as a metastasis-suppressor gene preventing hyperactivation of cell migration in breast cancer. *Nat. Commun.* 7: 13648.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.