



Na⁺ CP type Iβ siRNA (h): sc-97849

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⁺ CP type Iβ (sodium channel, voltage-gated, type I, β), also known as SCN1B or GEFP1, is a 218 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 associates with Neurofascin to target sodium channels to the nodes of Ranvier of developing axons. Abundantly expressed in heart, skeletal muscle and brain, Na⁺ CP type Iβ contains one Ig-like C2-type (immunoglobulin-like) domain and is linked to the development of a rare autosomal dominant familial condition known as GEFS+1 (generalized epilepsy with febrile seizures plus type 1).

REFERENCES

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- Tammaro, P., et al. 2002. Modulation of sodium current in mammalian cells by an epilepsy-correlated β 1-subunit mutation. *Biochem. Biophys. Res. Commun.* 291: 1095-1101.
- Wallace, R.H., et al. 2002. Generalized epilepsy with febrile seizures plus: mutation of the sodium channel subunit SCN1B. *Neurology* 58: 1426-1429.
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- Audenaert, D., et al. 2003. A deletion in SCN1B is associated with febrile seizures and early-onset absence epilepsy. *Neurology* 61: 854-856.
- Chen, C., et al. 2004. Mice lacking sodium channel β1 subunits display defects in neuronal excitability, sodium channel expression, and nodal architecture. *J. Neurosci.* 24: 4030-4042.

CHROMOSOMAL LOCATION

Genetic locus: SCN1B (human) mapping to 19q13.12.

PRODUCT

Na⁺ CP type Iβ siRNA (h) is a pool of 2 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 μM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Na⁺ CP type Iβ shRNA Plasmid (h): sc-97849-SH and Na⁺ CP type Iβ shRNA (h) Lentiviral Particles: sc-97849-V as alternate gene silencing products.

For independent verification of Na⁺ CP type Iβ (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-97849A and sc-97849B.

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 μl of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μl of RNase-free water makes a 10 μM solution in a 10 μM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

Na⁺ CP type Iβ siRNA (h) is recommended for the inhibition of Na⁺ CP type Iβ 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 μM in 66 μl. 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⁺ CP type Iβ gene expression knockdown using RT-PCR Primer: Na⁺ CP type Iβ (h)-PR: sc-97849-PR (20 μl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

- 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 for detailed protocols and support products.