SANTA CRUZ BIOTECHNOLOGY, INC.

Scn4b siRNA (h): sc-62982

BACKGROUND

Scn4b (sodium channel, voltage-gated, type IV, β) is a 228 amino acid single-pass type I membrane protein that is expressed at high levels in dorsal root ganglia and at lower levels in brain, spinal cord, skeletal muscle and heart. Belonging to the small GTPase superfamily and Rab family, Scn4b is suggested to modulate endosomal trafficking and may act as a regulator of membrane delivery during cytokinesis. Scn4b is one of several sodium channel β subunits that interacts with voltage-gated α subunits to change sodium channel kinetics. Mutations in the gene encoding Scn4b are thought to cause congenital long QT syndrome type 10 (LQT10), an inherited cardiac arrhythmia that causes sudden death in young, otherwise healthy people. Containing an Ig-like C2-type (immunoglobulin-like) domain, Scn4b forms interchain disulfide bonds with Na^+ CP type IIα and is encoded by a gene located on human chromosome 11q23.3.

REFERENCES

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2. Yu, F.H., et al. 2003. Sodium channel β4, a new disulfide-linked auxiliary subunit with similarity to β2. J. Neurosci. 23: 7577-7585.
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4. Grieco, T.M., et al. 2005. Open-channel block by the cytoplasmic tail of sodium channel β4 as a mechanism for resurgent sodium current. Neuron 45: 233-244.
5. Oyama, F., et al. 2006. Sodium channel β4 subunit: down-regulation and possible involvement in neuritic degeneration in Huntington's disease transgenic mice. J. Neurochem. 98: 518-529.
6. Ponomarev, I., et al. 2006. Transcriptional signatures of cellular plasticity in mice lacking the α1 subunit of $GABA_A$ receptors. J. Neurosci. 26: 5673-5683.
7. Mulligan, M.K., et al. 2006. Toward understanding the genetics of alcohol drinking through transcriptome meta-analysis. Proc. Natl. Acad. Sci. USA 103: 6368-6373.
8. Medeiros-Domingo, A., et al. 2007. Scn4b-encoded sodium channel β4 subunit in congenital long-QT syndrome. Circulation 116: 134-142.
9. Koopmann, T.T., et al. 2007. Exclusion of multiple candidate genes and large genomic rearrangements in SCN5A in a Dutch Brugada syndrome cohort. Heart Rhythm 4: 752-755.

CHROMOSOMAL LOCATION

Genetic locus: SCN4B (human) mapping to 11q23.3.

PROTOCOLS

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

PRODUCT

Scn4b 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Scn4b shRNA Plasmid (h): sc-62982-SH and Scn4b shRNA (h) Lentiviral Particles: sc-62982-V as alternate gene silencing products.

For independent verification of Scn4b (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-62982A, sc-62982B and sc-62982C.

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

Scn4b siRNA (h) is recommended for the inhibition of Scn4b 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 Scn4b gene expression knockdown using RT-PCR Primer: Scn4b (h)-PR: sc-62982-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

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.