SANTA CRUZ BIOTECHNOLOGY, INC.

Na^+ CP type XIα siRNA (h): sc-78209

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 depolarizes the cell. Na^+ CP type XIα, also known as SCN11A (sodium channel, voltage-gated, type XI, α subunit), hNaN, peripheral nerve sodium channel 5 or sensory neuron sodium channel 2, is a 1,791 amino acid multi-pass membrane protein that belongs to the voltage-gated sodium channel family. Expressed in spinal chord, cerebellar cortex, spleen, small intestine, olfactory bulb, hippocampus and dorsal and trigeminal root ganglia, Na^+ CP type XIα functions to mediate the voltage-dependent sodium ion permeability of excitable membranes, specifically assuming an opened or closed conformation in response to voltage changes across the membrane. Na^+ CP type XIα is expressed as three isoforms produced by alternative splicing.

REFERENCES

1. Dib-Hajj, S.D., et al. 1999. Two tetrodotoxin-resistant sodium channels in human dorsal root ganglion neurons. FEBS Lett. 462: 117-120.
2. Jeong, S.Y., et al. 2000. Identification of a novel human voltage-gated sodium channel α subunit gene, SCN12A. Biochem. Biophys. Res. Commun. 267: 262-270.
3. Goldin, A.L., et al. 2000. Nomenclature of voltage-gated sodium channels. Neuron 28: 365-368.
4. Blum, R., et al. 2002. Neurotrophin-evoked depolarization requires the sodium channel Na(V)1.9. Nature 419: 687-693.
5. Delmas, P., et al. 2003. Na^+ channel Nav1.9: in search of a gating mechanism. Trends Neurosci. 26: 55-57.
6. Raymond, C.K., et al. 2004. Expression of alternatively spliced sodium channel α subunit genes. Unique splicing patterns are observed in dorsal root ganglia. J. Biol. Chem. 279: 46234-46241.
7. Catterall, W.A., et al. 2005. International Union of Pharmacology. XLVII. Nomenclature and structure-function relationships of voltage-gated sodium channels. Pharmacol. Rev. 57: 397-409.

CHROMOSOMAL LOCATION

Genetic locus: SCN11A (human) mapping to 3p22.2.

PRODUCT

Na^+ CP type XIα 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 Na^+ CP type XIα shRNA Plasmid (h): sc-78209-SH and Na^+ CP type XIα shRNA (h) Lentiviral Particles: sc-78209-V as alternate gene silencing products.

For independent verification of Na^+ CP type XIα (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-78209A, sc-78209B and sc-78209C.

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 XIα siRNA (h) is recommended for the inhibition of Na^+ CP type XIα 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 XIα gene expression knockdown using RT-PCR Primer: Na^+ CP type XIα (h)-PR: sc-78209-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.