SANTA CRUZ BIOTECHNOLOGY, INC.

Na^+ CP type IIIβ siRNA (h): sc-61136

BACKGROUND

Voltage-gated Na^+ channels regulate the permeability of excitable cells to sodium ions. During the propagation of an action potential, Na^+ channels allow an influx of sodium ions, which rapidly depolarize the cell. The sodium channel protein is comprised of one α subunit and two β subunits. The Na^+ CP type I and Na^+ CP type IIα subunits are expressed in adult brain. Na^+ CP type IIIα is expressed in embryonic brain, but not in adult brain. Na^+ CP type IIIβ 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 Iβ 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^+ CP type IIIβ is upregulated in response to DNA damage. In association with Neurofascin, Na^+ CP type IIIβ may target the sodium channels to nodes of Ranvier of developing axons and retain these channels at the nodes in mature myelinated axons.

REFERENCES

1. Crabbe, J.C., et al. 1997. Use of recombinant inbred strains for studying studying genetic determinants of responses to alcohol. Alcohol Alcohol. Suppl. 2: 67-71.
2. Morgan, K., et al. 2000. β3: 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.
3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 608214. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Adachi, K., et al. 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.

PRODUCT

Na^+ CP type IIIβ siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 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 IIIβ shRNA Plasmid (h): sc-61136-SH and Na^+ CP type IIIβ shRNA (h) Lentiviral Particles: sc-61136-V as alternate gene silencing products.

For independent verification of Na^+ CP type IIIβ (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-61136A, sc-61136B and sc-61136C.

PROTOCOLS

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

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 IIIβ siRNA (h) is recommended for the inhibition of Na^+ CP type IIIβ 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.

GENE EXPRESSION MONITORING

Na^+ CP type IIIβ (C-11): sc-515123 is recommended as a control antibody for monitoring of Na^+ CP type IIIβ gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Na^+ CP type IIIβ gene expression knockdown using RT-PCR Primer: Na^+ CP type IIIβ (h)-PR: sc-61136-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.