SANTA CRUZ BIOTECHNOLOGY, INC.

L-type Ca^{++} CP γ3 siRNA (h): sc-93047

BACKGROUND

Voltage-dependent calcium channels are important for the release of neurotransmitters into neurons. L-type (long lasting current) voltage-dependent calcium channels are composed of four subunits: an α1 subunit, a β subunit, a γ subunit and an α2/δ subunit. The γ subunit is made of eight distinct proteins (designated L-type Ca^{++} CP γ1-γ8) and functions by influencing the properties of the calcium current. L-type Ca^{++} CP γ3, also known as CACNG3 or Cacng2, is a 315 amino acid multi-pass membrane protein that belongs to the CACNG family. As one of the eight γ subunits, L-type Ca^{++} CP γ3 is thought to stabilize the calcium current when the calcium channel is in a closed (inactivated) state. Defects in the gene encoding L-type Ca^{++} CP γ3 may be associated with familial infantile convulsive disorder with paroxysomal choreoathetosis, an autosomal dominant neurological disorder.

REFERENCES

1. Powers, P.A., et al. 1993. Molecular characterization of the gene encoding the γ subunit of the human skeletal muscle 1,4-dihydropyridine-sensitive Ca^{2+} channel (CACNLG), cDNA sequence, gene structure, and chromosomal location. J. Biol. Chem. 268: 9275-9279.
2. Burgess, D.L., et al. 1999. Identification of three novel Ca^{2+} channel γ subunit genes reveals molecular diversification by tandem and chromosome duplication. Genome Res. 9: 1204-1213.
3. Black, J.L. and Lennon, V.A. 1999. Identification and cloning of putative human neuronal voltage-gated calcium channel γ-2 and γ-3 subunits: neurologic implications. Mayo Clin. Proc. 74: 357-361.
4. Burgess, D.L., et al. 2001. A cluster of three novel Ca^{2+} channel γ subunit genes on chromosome 19q13.4: evolution and expression profile of the γ subunit gene family. Genomics 71: 339-350.
5. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 606403. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
6. Moss, F.J., et al. 2003. Human neuronal stargazin-like proteins, γ2, γ3 and γ4; an investigation of their specific localization in human brain and their influence on CaV2.1 voltage-dependent calcium channels expressed in *Xenopus* oocytes. BMC Neurosci. 4: 23.

CHROMOSOMAL LOCATION

Genetic locus: CACNG3 (human) mapping to 16p12.1.

PRODUCT

L-type Ca^{++} CP γ3 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 L-type Ca^{++} CP γ3 shRNA Plasmid (h): sc-93047-SH and L-type Ca^{++} CP γ3 shRNA (h) Lentiviral Particles: sc-93047-V as alternate gene silencing products.

For independent verification of L-type Ca^{++} CP γ3 (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-93047A, sc-93047B and sc-93047C.

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

L-type Ca^{++} CP γ3 siRNA (h) is recommended for the inhibition of L-type Ca^{++} CP γ3 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

L-type Ca^{++} CP γ3 (A-07): sc-81889 is recommended as a control antibody for monitoring of L-type L-type Ca^{++} CP γ3 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 L-type Ca^{++} CP γ3 gene expression knockdown using RT-PCR Primer: L-type Ca^{++} CP γ3 (h)-PR: sc-93047-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.