SANTA CRUZ BIOTECHNOLOGY, INC.

L-type Ca^{++} CP γ8 siRNA (h): sc-97586

BACKGROUND

L-type (long lasting current) voltage-dependent calcium channels are composed of four subunits, designated α1, β, γ and α2/δ, all of which work together to mediate neurotransmitter release. L-type Ca^{++} CP γ8, also known as CACNG8 (calcium channel, voltage-dependent, gamma subunit 8), is a 425 amino acid multi-pass membrane protein that exists as a component of the γ subunit and is thought to specifically stabilize calcium channels in a closed (inactive) state. The gene encoding L-type Ca^{++} CP γ8 maps to a cluster of γ subunit-encoding genes on human chromosome 19. Chromosome 19 consists of over 63 million bases, houses approximately 1,400 genes and is recognized for having the greatest gene density of the human chromosomes. Angelman syndrome, Prader-Willi syndrome, Tay-Sachs disease and Marfan syndrome are all associated with defects in chromosome 15-localized genes.

REFERENCES

1. Burgess, D.L. and Noebels, J.L. 1999. Single gene defects in mice: the role of voltage-dependent calcium channels in absence models. Epilepsy Res. 36: 111-122
2. Chu, P.J., Robertson, H.M. and Best, P.M. 2001. Calcium channel γ subunits provide insights into the evolution of this gene family. Gene 280: 37-48.
3. Burgess, D.L., Gefrides, L.A., Foreman, P.J. and Noebels, J.L. 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.
4. Black, J.L. 2003. The voltage-gated calcium channel γ subunits: a review of the literature. J. Bioenerg. Biomembr. 35: 649-660.
5. Rouach, N., Byrd, K., Petralia, R.S., Elias, G.M., Adesnik, H., Tomita, S., Karimzadegan, S., Kealey, C., Bredt, D.S. and Nicoll, R.A. 2005. TARP γ8 controls hippocampal AMPA receptor number, distribution and synaptic plasticity. Nat. Neurosci. 8: 1525-1533.
6. Online Mendelian Inheritance in Man, OMIM™. 2006. Johns Hopkins University, Baltimore, MD. MIM Number: 606900. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/

CHROMOSOMAL LOCATION

Genetic locus: CACNG8 (human) mapping to 19q13.42.

PRODUCT

L-type Ca^{++} CP γ8 siRNA (h) is a target-specific 19-25 nt siRNA 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 γ8 shRNA Plasmid (h): sc-97586-SH and L-type Ca^{++} CP γ8 shRNA (h) Lentiviral Particles: sc-97586-V as alternate gene silencing products.

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

L-type Ca^{++} CP γ8 siRNA (h) is recommended for the inhibition of L-type Ca^{++} CP γ8 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 γ8 (A-8): sc-514421 is recommended as a control antibody for monitoring of L-type Ca^{++} CP γ8 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 γ8 gene expression knockdown using RT-PCR Primer: L-type Ca^{++} CP γ8 (h)-PR: sc-97586-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.