SANTA CRUZ BIOTECHNOLOGY, INC.

Cacna2d4 siRNA (m): sc-141970

BACKGROUND

Members of the calcium channel subunit α-2/δ family regulate many aspects of calcium channels, such as increasing functional channel density on the plasma membrane, regulating voltage dependent kinetics and gating. Cacna2d4 (voltage-dependent calcium channel subunit α-2/δ-4) is a 1,137 amino acid single pass membrane protein that forms multi-subunit complexes with L-type Ca^{++} CP α1C and L-type Ca^{++} CP β3 in a 1:1:1 ratio in order to regulate the calcium current density and the activation state of the calcium channel. Cacna2d4 is predominantly expressed in a variety of endocrine cells, such as Paneth cells in the small intestine, in the basophils of the pituitary gland and in cells of the adrenal zona reticularis. Defects in the gene encoding Cacna2d4 are the cause of retinal cone dystrophy 4, a disease characterized by a slow, progressive reduction in visual acuity. There are six isoforms of Cacna2d4 that are produced as a result of alternative splicing events.

REFERENCES

1. Qin, N., et al. 2002. Molecular cloning and characterization of the human voltage-gated calcium channel α(2)δ-4 subunit. Mol. Pharmacol. 62: 485-496.
2. Wycisk, K.A., et al. 2006. Mutation in the auxiliary calcium-channel subunit CACNA2D4 causes autosomal recessive cone dystrophy. Am. J. Hum. Genet. 79: 973-977.
3. Wycisk, K.A., et al. 2006. Structural and functional abnormalities of retinal ribbon synapses due to Cacna2d4 mutation. Invest. Ophthalmol. Vis. Sci. 47: 3523-3530.
4. Online Mendelian Inheritance in Man, OMIM™. 2006. Johns Hopkins University, Baltimore, MD. MIM Number: 608171. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
5. Wanajo, A., et al. 2008. Methylation of the calcium channel-related gene, CACNA2D3, is frequent and a poor prognostic factor in gastric cancer. Gastroenterology 135: 580-590.
6. Zeitz, C., et al. 2009. Genotyping microarray for CSNB-associated genes. Invest. Ophthalmol. Vis. Sci. 50: 5919-5926.

CHROMOSOMAL LOCATION

Genetic locus: Cacna2d4 (mouse) mapping to 6 F1.

PRODUCT

Cacna2d4 siRNA (m) 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 Cacna2d4 shRNA Plasmid (m): sc-141970-SH and Cacna2d4 shRNA (m) Lentiviral Particles: sc-141970-V as alternate gene silencing products.

For independent verification of Cacna2d4 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-141970A, sc-141970B and sc-141970C.

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

Cacna2d4 siRNA (m) is recommended for the inhibition of Cacna2d4 expression in mouse 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 Cacna2d4 gene expression knockdown using RT-PCR Primer: Cacna2d4 (m)-PR: sc-141970-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.