SANTA CRUZ BIOTECHNOLOGY, INC.

Cacna2d3 siRNA (m): sc-141969

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. Cacna2d3 (voltage-dependent calcium channel subunit α-2/δ-3) is a 1,091 amino acid single-pass transmembrane protein that interacts with α-1, α-2 and β subunits in a 1:1:1:1 ratio to form a channel-mediating calcium influx. Cacna2d3 contains a VWFA domain that binds divalent metal cations, which are required to promote trafficking of the α-1 subunit to the plasma membrane. Cacna2d3 can be proteolytically cleaved into α-2-3 and δ-3 subunits that are linked by disulfide bonds. Loss of heterozygosity in the gene encoding Cacna2d3 has been discovered in conventional renal cell carcinomas.

REFERENCES

1. Wang, M., et al. 1999. Structural requirement of the calcium-channel subunit $\alpha_2\delta$ for gabapentin binding. Biochem. J. 342: 313-320.
2. Hanke, S., et al. 2001. Cloning a calcium channel $\alpha_2\delta$-3 subunit gene from a putative tumor suppressor gene region at chromosome 3p21.1 in conventional renal cell carcinoma. Gene 264: 69-75.
3. Gong, H.C., et al. 2001. Tissue-specific expression and gabapentin-binding properties of calcium channel $\alpha_2\delta$ subunit subtypes. J. Membr. Biol. 184: 35-43.
4. Qin, N., et al. 2002. Molecular cloning and characterization of the human voltage-gated calcium channel $\alpha_2\delta$-4 subunit. Mol. Pharmacol. 62: 485-496.
5. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 606399. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
6. Klugbauer, N., et al. 2003. Calcium channel $\alpha_2\delta$ subunits: differential expression, function, and drug binding. J. Bioenerg. Biomembr. 35: 639-647.
7. Lacinová, L. 2005. Voltage-dependent calcium channels. Gen. Physiol. Biophys. 24: 1-78.

CHROMOSOMAL LOCATION

Genetic locus: Cacna2d3 (mouse) mapping to 14 A3.

PRODUCT

Cacna2d3 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 Cacna2d3 shRNA Plasmid (m): sc-141969-SH and Cacna2d3 shRNA (m) Lentiviral Particles: sc-141969-V as alternate gene silencing products.

For independent verification of Cacna2d3 (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-141969A, sc-141969B and sc-141969C.

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

Cacna2d3 siRNA (m) is recommended for the inhibition of Cacna2d3 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 Cacna2d3 gene expression knockdown using RT-PCR Primer: Cacna2d3 (m)-PR: sc-141969-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Liu, F., et al. 2018. MicroRNA-27a controls the intracellular survival of *Mycobacterium tuberculosis* by regulating calcium-associated autophagy. Nat. Commun. 9: 4295.

RESEARCH USE

For research use only, not for use in diagnostic procedures.