SANTA CRUZ BIOTECHNOLOGY, INC.

# L-type $Ca^{++}$ CP $\alpha$1C siRNA (m): sc-42689

## BACKGROUND

Voltage-dependent $Ca^{2+}$ channels mediate $Ca^{2+}$ entry into excitable cells in response to membrane depolarization, and they are involved in a variety of $Ca^{2+}$-dependent processes, including muscle contraction, hormone or neurotransmitter release and gene expression. Calcium channels are highly diverse, multimeric complexes composed of an $\alpha$-1 subunit, an intracellular $\beta$-subunit, a disulfide linked $\alpha$-2/$\delta$ subunit and a transmembrane $\gamma$-subunit. $Ca^{2+}$ currents are characterized on the basis of their biophysical and pharmacologic properties and include L-, N-, T-, P-, Q-, and R- types. L-type $Ca^{2+}$ currents initiate muscle contraction, endocrine secretion, and gene transcription, and can be regulated through second-messenger activated protein phosphorylation pathways. L-type calcium channels may form macromolecular signaling complexes with G protein-coupled receptors, thereby enhancing the selectivity of regulating specific targets.

## REFERENCES


1. Perez-Reyes, E. and Schneider, T. 1995. Molecular biology of calcium channels. Kidney Int. 48: 1111-1124.
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3. Catterall, W.A. 2000. Structure and regulation of voltage-gated $Ca^{2+}$ channels. Annu. Rev. Cell Dev. Biol. 16: 521-555.
4. Davare, M.A., Avdonin, V., Hall, D.D., Peden, E.M., Burette, A., Weinberg, R.J., Horne, M.C., Hoshi, T. and Hell, J.W. 2001. A $\beta_2$ adrenergic receptor signaling complex assembled with the $Ca^{2+}$ channel $Ca_V1.2$. Science 293: 98-101.
5. Online Mendelian Inheritance in Man, OMIM™. 2001. Johns Hopkins University, Baltimore, MD. MIM Number: 601011. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/


## CHROMOSOMAL LOCATION

Genetic locus: Cacna1c (mouse) mapping to 6 F1.

## PRODUCT

L-type $Ca^{++}$ CP $\alpha$1C 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 L-type $Ca^{++}$ CP $\alpha$1C shRNA Plasmid (m): sc-42689-SH and L-type $Ca^{++}$ CP $\alpha$1C shRNA (m) Lentiviral Particles: sc-42689-V as alternate gene silencing products.

For independent verification of L-type $Ca^{++}$ CP $\alpha$1C (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-42689A, sc-42689B and sc-42689C.

## 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 $\alpha$1C siRNA (m) is recommended for the inhibition of L-type $Ca^{++}$ CP $\alpha$1C 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 L-type $Ca^{++}$ CP $\alpha$1C gene expression knockdown using RT-PCR Primer: L-type $Ca^{++}$ CP $\alpha$1C (m)-PR: sc-42689-PR (20 µl, 488 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS


1. Gupta, S., Salam, N., Srivastava, V., Singla, R., Behera, D., Khayyam, K.U., Korde, R., Malhotra, P., Saxena, R. and Natarajan, K. 2009. Voltage gated calcium channels negatively regulate protective immunity to *Mycobacterium tuberculosis*. PLoS ONE 4: e3505.
2. Martín, C., Gómez-Bilbao, G. and Ostolaza, H. 2010. *Bordetella* adenylate cyclase toxin promotes calcium entry into both $CD11b^+$ and $CD11b^-$ cells through cAMP-dependent L-type-like calcium channels. J. Biol. Chem. 285: 357-364.
3. Fei, D., Zhang, Y., Wu, J., Zhang, H., Liu, A., He, X., Wang, J., Li, B., Wang, Q. and Jin, Y. 2019. $Ca_V$ 1.2 regulates osteogenesis of bone marrow-derived mesenchymal stem cells via canonical Wnt pathway in age-related osteoporosis. Aging Cell 18: e12967.
4. Li, B., He, X., Dong, Z., Xuan, K., Sun, W., Gao, L., Liu, S., Liu, W., Hu, C., Zhao, Y., Shi, S. and Jin, Y. 2020. Ionomycin ameliorates hypophosphatasia via rescuing alkaline phosphatase deficiency-mediated L-type $Ca^{2+}$ channel internalization in mesenchymal stem cells. Bone Res. 8: 19.


## RESEARCH USE

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