

# L-type Ca<sup>++</sup> CP $\gamma$ 2 siRNA (h): sc-42696

## BACKGROUND

Excitable cells in response to membrane depolarization are involved in a variety of Ca<sup>2+</sup>-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. L-type Ca<sup>2+</sup> currents initiate muscle contraction, endocrine secretion and gene transcription, and are 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. L-type calcium channels in the brain specifically express the  $\gamma$ 2 subunit along with  $\gamma$ 3 and  $\gamma$ 4 subunits. The  $\gamma$ 2 subunit (also known as stargazin) is abundant in synaptic plasma membranes where it regulates synaptic targeting of AMP receptors in granule cells.

## REFERENCES

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3. Randall, A.D. 1998. The molecular basis of voltage-gated Ca<sup>2+</sup> channel diversity: is it time for T? *J. Membr. Biol.* 161: 207-213.
4. Catterall, W.A. 2000. Structure and regulation of voltage-gated Ca<sup>2+</sup> channels. *Annu. Rev. Cell Dev. Biol.* 16: 521-555.
5. Chen, L., et al. 2000. Stargazing regulates synaptic targeting of AMPA receptors by two distinct mechanisms. *Nature* 408: 936-943.
6. Davare, M.A., et al. 2001. A  $\beta$ <sub>2</sub> adrenergic receptor signaling complex assembled with the Ca<sup>2+</sup> channel Ca<sub>v</sub>1.2. *Science* 293: 98-101.
7. Online Mendelian Inheritance in Man, OMIM<sup>™</sup>. 2001. Johns Hopkins University, Baltimore, MD. MIM Number: 601011. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>

## CHROMOSOMAL LOCATION

Genetic locus: CACNG2 (human) mapping to 22q12.3.

## PRODUCT

L-type Ca<sup>++</sup> CP  $\gamma$ 2 siRNA (h) is a pool of 2 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see L-type Ca<sup>++</sup> CP  $\gamma$ 2 shRNA Plasmid (h): sc-42696-SH and L-type Ca<sup>++</sup> CP  $\gamma$ 2 shRNA (h) Lentiviral Particles: sc-42696-V as alternate gene silencing products.

For independent verification of L-type Ca<sup>++</sup> CP  $\gamma$ 2 (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-42696A and sc-42696B.

## PROTOCOLS

See our web site at [www.scbt.com](http://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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

L-type Ca<sup>++</sup> CP  $\gamma$ 2 siRNA (h) is recommended for the inhibition of L-type Ca<sup>++</sup> CP  $\gamma$ 2 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  $\mu$ M in 66  $\mu$ l. 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<sup>++</sup> CP  $\gamma$ 2 (D-7): sc-376281 is recommended as a control antibody for monitoring of L-type Ca<sup>++</sup> CP  $\gamma$ 2 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-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor L-type Ca<sup>++</sup> CP  $\gamma$ 2 gene expression knockdown using RT-PCR Primer: L-type Ca<sup>++</sup> CP  $\gamma$ 2 (h)-PR: sc-42696-PR (20  $\mu$ l). 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.