



L-type Ca^{++} CP $\beta 2$ siRNA (h): sc-90812

BACKGROUND

Excitable cells in response to membrane depolarization 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 α -1 subunit, an intracellular β subunit, a disulfide linked α -2/ δ subunit and a transmembrane γ subunit. L-type Ca^{2+} 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 γ -2 subunit along with γ -3 and -4 subunits. The γ -2 subunit (also known as stargazin) is abundant in synaptic plasma membranes where it regulates synaptic targeting of AMP receptors in granule cells.

REFERENCES

1. Perez-Reyes, E., et al. 1995. Molecular biology of calcium channels. *Kidney Int.* 48: 1111-1124.
2. Campbell, K.P., et al. 1998. The mouse stargazer gene encodes a neuronal Ca^{2+} -channel γ subunit. *Nat. Genet.* 19: 340-347.
3. Randall, A.D. 1998. The molecular basis of voltage-gated Ca^{2+} 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^{2+} 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 β_2 -adrenergic receptor signaling complex assembled with the Ca^{2+} channel Cav1.2. *Science* 293: 98-101.
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CHROMOSOMAL LOCATION

Genetic locus: CACNB2 (human) mapping to 10p12.33.

PRODUCT

L-type Ca^{++} CP $\beta 2$ siRNA (h) 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 $\beta 2$ shRNA Plasmid (h): sc-90812-SH and L-type Ca^{++} CP $\beta 2$ shRNA (h) Lentiviral Particles: sc-90812-V as alternate gene silencing products.

For independent verification of L-type Ca^{++} CP $\beta 2$ (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-90812A, sc-90812B and sc-90812C.

RESEARCH USE

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

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 $\beta 2$ siRNA (h) is recommended for the inhibition of L-type Ca^{++} CP $\beta 2$ 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 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 $\beta 2$ (F-29): sc-81890 is recommended as a control antibody for monitoring of L-type Ca^{++} CP $\beta 2$ 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 κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 $\beta 2$ gene expression knockdown using RT-PCR Primer: L-type Ca^{++} CP $\beta 2$ (h)-PR: sc-90812-PR (20 μl). Annealing temperature for the primers should be $55-60^\circ\text{C}$ and the extension temperature should be $68-72^\circ\text{C}$.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.