SANTA CRUZ BIOTECHNOLOGY, INC.

CNG-1β siRNA (h): sc-42397

BACKGROUND

Cyclic nucleotide-gated (CNG) cation channels are heteromeric complexes made up of principal α subunits, designated CNG-1 through CNG-4, and modulatory β subunits, designated CNG-1β and CNG-3β. CNG channels play essential roles in olfactory and visual transduction, regulation of arterial blood pressure and hormone secretion. CNG-1β (cyclic nucleotide-gated cation channel β-1), also known as CNCG2, CNCG3L, GAR1, GARP or CNCG4, is a 909 amino acid multi-pass membrane protein that belongs to to the CNG family and contains one cyclic nucleotide-binding domain. Existing in a heterooligomeric complex with CNG-1, CNG-1β functions to generate a receptor current in response to a rise in cAMP levels within the cell. Multiple isoforms of CNG-β1 exist due to alternative splicing events.

REFERENCES

1. Sautter, A., et al. 1997. Molecular cloning of cyclic nucleotide-gated cation channel subunits from rat pineal gland. Brain Res. Mol. Brain Res. 48: 171-175.
2. Sautter, A., et al. 1998. An isoform of the rod photoreceptor cyclic necleotide-gated channel β subunit expressed in olfactory neurons. Proc. Natl. Acad. Sci. USA 95: 4696-4701.
3. Biel, M., et al. 1999. Selective loss of cone function in mice lacking the cyclic nucleotide-gated channel CNG-3. Proc. Natl. Acad. Sci. USA 96: 7553-7557.
4. Yao, X., et al. 1999. Rod-type cyclic nucleotide-gated cation channel is expressed in vascular endothelium and vascular smooth muscle cells. Cardiovasc. Res. 41: 282-290.
5. Gerstner, A., et al. 2000. Molecular cloning and functional characterization of a new modulatory cyclic nucleotide-gated channel subunit from mouse retina. J. Neurosci. 20: 1324-1332.
6. Vitalis, E.A., et al. 2000. Role of the cAMP signaling pathway in the regulation of gonadotropin-releasing hormone secretion in GT1 cells. Proc. Natl. Acad. Sci. USA 97: 1861-1866.
7. Pentia, D.C., et al. 2006. The glutamic acid-rich protein-2 (GARP2) is a high affinity rod photoreceptor phosphodiesterase (PDE6)-binding protein that modulates its catalytic properties. J. Biol. Chem. 281: 5500-5505.
8. Song, Y., et al. 2008. Olfactory CNG channel desensitization by Ca^{2+}/CaM via the B1b subunit affects response termination but not sensitivity to recurring stimulation. Neuron 58: 374-386.

CHROMOSOMAL LOCATION

Genetic locus: CNGB1 (human) mapping to 16q21.

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.

PRODUCT

CNG-1β 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 CNG-1β shRNA Plasmid (h): sc-42397-SH and CNG-1β shRNA (h) Lentiviral Particles: sc-42397-V as alternate gene silencing products.

For independent verification of CNG-1β (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-42397A, sc-42397B and sc-42397C.

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

CNG-1β siRNA (h) is recommended for the inhibition of CNG-1β 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor CNG-1β gene expression knockdown using RT-PCR Primer: CNG-1β (h)-PR: sc-42397-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.