



CNG-1 siRNA (h): sc-42391

BACKGROUND

Cyclic nucleotide-gated (CNG) cation channels are heteromeric complexes made up of principal α and modulatory β subunits. The α subunits consist of CNG-1–3 and form functional cation channels by themselves. The β subunits consist of CNG-4–6 and, unlike the α subunits, do not form functional channels, but rather modify the properties of channels. CNG channels are essential components of olfactory and visual transduction. In olfactory neurons, CNG-2, CNG-4.3 and CNG-5 form Ca^{2+} permeable channels, which open and depolarize the cell in response to cAMP. In rod photoreceptors, CNG-1 and CNG-4.1 combine to form Ca ion permeable channels, which give rise to a current in response to cGMP. CNG-3 and CNG-6 are expressed in cone receptors and may combine to form a native cGMP-activated channel. CNG channels have been implicated in other areas. CNG-1 is also expressed in medium-sized and small-sized arteries, suggesting a role for CNG in the regulation of arterial blood pressure and of blood supply to different regions. CNG-1, CNG-4.1 and CNG-4.2 have been detected in the rat pineal gland. CNG-2, CNG-4.3 and CNG-5 are present in GT1 cell lines and may play a role in the secretion of gonadotropin-releasing hormone.

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 nucleotide-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 CNG3. *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. 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.
6. 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.

CHROMOSOMAL LOCATION

Genetic locus: CNGA1 (human) mapping to 4p12.

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-1 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-1 shRNA Plasmid (h): sc-42391-SH and CNG-1 shRNA (h) Lentiviral Particles: sc-42391-V as alternate gene silencing products.

For independent verification of CNG-1 (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-42391A, sc-42391B and sc-42391C.

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-1 siRNA (h) is recommended for the inhibition of CNG-1 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-1 gene expression knockdown using RT-PCR Primer: CNG-1 (h)-PR: sc-42391-PR (20 μl , 525 bp). Annealing temperature for the primers should be $55-60^{\circ}\text{C}$ and the extension temperature should be $68-72^{\circ}\text{C}$.