

# CNG-1 siRNA (m): sc-42392

## BACKGROUND

Cyclic nucleotide-gated (CNG) cation channels are heteromeric complexes made up of principal  $\alpha$  and modulatory  $\beta$  subunits. The  $\alpha$  subunits consist of CNG-1–3 and form functional cation channels by themselves. The  $\beta$  subunits consist of CNG-4–6 and, unlike the  $\alpha$  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  $\text{Ca}^{2+}$  permeable channels, which open and depolarize the cell in response to cAMP. In rod photoreceptors, CNG-1 and CNG-4.1 combine to form  $\text{Ca}$  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  $\beta$  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 (mouse) mapping to 5 C3.2.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.

## PRODUCT

CNG-1 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  $\mu\text{M}$  solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see CNG-1 shRNA Plasmid (m): sc-42392-SH and CNG-1 shRNA (m) Lentiviral Particles: sc-42392-V as alternate gene silencing products.

For independent verification of CNG-1 (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-42392A, sc-42392B and sc-42392C.

## STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at  $-20^{\circ}\text{C}$  with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at  $-20^{\circ}\text{C}$ , avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330  $\mu\text{l}$  of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu\text{l}$  of RNase-free water makes a 10  $\mu\text{M}$  solution in a 10  $\mu\text{M}$  Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

CNG-1 siRNA (m) is recommended for the inhibition of CNG-1 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  $\mu\text{M}$  in 66  $\mu\text{l}$ . 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.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor CNG-1 gene expression knockdown using RT-PCR Primer: CNG-1 (m)-PR: sc-42392-PR (20  $\mu\text{l}$ ). Annealing temperature for the primers should be  $55-60^{\circ}\text{C}$  and the extension temperature should be  $68-72^{\circ}\text{C}$ .