SANTA CRUZ BIOTECHNOLOGY, INC.

CNG-3 siRNA (m): sc-42396

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 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.

CHROMOSOMAL LOCATION

Genetic locus: Cnga3 (mouse) mapping to 1 B.

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-3 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see CNG-3 shRNA Plasmid (m): sc-42396-SH and CNG-3 shRNA (m) Lentiviral Particles: sc-42396-V as alternate gene silencing products.

For independent verification of CNG-3 (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-42396A, sc-42396B and sc-42396C.

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-3 siRNA (m) is recommended for the inhibition of CNG-3 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 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-3 gene expression knockdown using RT-PCR Primer: CNG-3 (m)-PR: sc-42396-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.