

# A cyclase III siRNA (h): sc-29600

## BACKGROUND

Adenylyl cyclases function to convert ATP to cyclic AMP in response to activation by a variety of hormones, neurotransmitters and other regulatory molecules. Cyclic AMP, in turn, activates several other target molecules to control a broad range of diverse phenomena such as metabolism, gene transcription and memory. Adenylyl cyclases respond to receptor-initiated signals, mediated by the  $G_s$  and  $G_i$  heterotrimeric G proteins. The binding of an agonist to a  $G_s$ -coupled receptor catalyzes the exchange of GDP (bound to  $G_{\alpha_s}$ ) for GTP, the dissociation of  $GTP-G_{\alpha_s}$  from  $G_{\beta\gamma}$  and  $G_{\alpha_s}$ -mediated activation of adenylyl cyclase. Adenylyl cyclases of the type II family differ from other subforms in that they are conditionally stimulated by  $G_{\alpha_s/\beta\gamma}$  subunits and regulated by PKC-mediated C-terminal phosphorylation. Both short- and long-term activation of  $D_{2L}$  dopamine receptors result in a marked degree of sensitization of A cyclase I, II, V and IX, but not A cyclase VIII. The effects on A cyclase I, II and VIII is dependent upon the ability of these A cyclase isoforms to synergistically respond to selective activators in the presence of activated  $G_{\alpha_s}$ . Belonging to the adenylyl cyclase class IV family, A cyclase III is activated by  $G_{olf}$ , which results in an elevation of cyclic AMP and subsequent activation of a cyclic nucleotide-gated channel.

## REFERENCES

1. Gilman, A.G. 1987. G proteins: transducers of receptor-generated signals. *Annu. Rev. Biochem.* 56: 615-649.
2. Bourne, H.R., et al. 1990. The GTPase superfamily: a conserved switch for diverse cell functions. *Nature* 348: 125-132.
3. Tang, W.J., et al. 1992. Adenylyl cyclases. *Cell* 70: 869-872.
4. Taussig, R., et al. 1994. Distinct patterns of bidirectional regulation of mammalian adenylyl cyclases. *J. Biol. Chem.* 269: 6093-6100.
5. Liu, C.Y., et al. 1999. FICRHR/cyclic AMP signaling in myenteric ganglia and calbindin-D28 intrinsic primary afferent neurons involves adenylyl cyclases I, III and IV. *Brain Res.* 826: 253-269.

## CHROMOSOMAL LOCATION

Genetic locus: ADCY3 (human) mapping to 2p23.3.

## PRODUCT

A cyclase III 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see A cyclase III shRNA Plasmid (h): sc-29600-SH and A cyclase III shRNA (h) Lentiviral Particles: sc-29600-V as alternate gene silencing products.

For independent verification of A cyclase III (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-29600A, sc-29600B and sc-29600C.

## PROTOCOLS

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

## STORAGE AND RESUSPENSION

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

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

## APPLICATIONS

A cyclase III siRNA (h) is recommended for the inhibition of A cyclase III 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  $\mu$ M in 66  $\mu$ 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 A cyclase III gene expression knockdown using RT-PCR Primer: A cyclase III (h)-PR: sc-29600-PR (20  $\mu$ l). Annealing temperature for the primers should be  $55-60^{\circ}$  C and the extension temperature should be  $68-72^{\circ}$  C.

## RESEARCH USE

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