

# A cyclase IX siRNA (h): sc-29604

## 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 (primarily cyclic AMP-dependent protein kinases) to control a broad range of diverse phenomena such as metabolism, gene transcription and memory. Classically, 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 (i.e., a  $\beta$ -adrenergic receptor) catalyzes the exchange of GDP (bound to  $G_{\alpha_s}$ ) for GTP, dissociation of  $GTP-G_{\alpha_s}$  from  $G_{\beta\gamma}$  and  $G_{\alpha_s}$ -mediated activation of adenylyl cyclase. The most abundant cerebral adenylyl cyclase appears to be adenylyl cyclase IX. AC IX is confined to the gray matter and its expression is mainly neuronal, with its highest expression located at the hippocampus. AC IX is also expressed in heart, pancreas and thyrocytes. AC I and AC IX are regulated reciprocally by intracellular free  $Ca^{2+}$ . The inhibition of AC IX by  $Ca^{2+}$  is blocked by the calcineurin inhibitors FK506 and cyclosporin A.

## REFERENCES

1. Gilman, A.G. 1987. G proteins: transducers of receptor-generated signals. *Annu. Rev. Biochem.* 56: 615-649.
2. Bourne, H.R., Sanders, D.A. and McCormick, F. 1990. The GTPase superfamily: a conserved switch for diverse cell functions. *Nature* 348: 125-132.
3. Tang, W.J. and Gilman, A.G. 1992. Adenylyl cyclases. *Cell* 70: 869-872.
4. Taussig, R., Tang, W.J., Hepler, J.R. and Gilman, A.G. 1994. Distinct patterns of bidirectional regulation of mammalian adenylyl cyclases. *J. Biol. Chem.* 269: 6093-6100.
5. Paterson, J.M., Smith, S.M., Harmar, A.J. and Antoni, F.A. 1995. Control of a novel adenylyl cyclase by calcineurin. *Biochem. Biophys. Res. Commun.* 214: 1000-1008.

## CHROMOSOMAL LOCATION

Genetic locus: ADCY9 (human) mapping to 16p13.3.

## PRODUCT

A cyclase IX 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 IX shRNA Plasmid (h): sc-29604-SH and A cyclase IX shRNA (h) Lentiviral Particles: sc-29604-V as alternate gene silencing products.

For independent verification of A cyclase IX (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-29604A, sc-29604B and sc-29604C.

## 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 IX siRNA (h) is recommended for the inhibition of A cyclase IX 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 IX gene expression knockdown using RT-PCR Primer: A cyclase IX (h)-PR: sc-29604-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.