

A cyclase VII siRNA (h): sc-40323

BACKGROUND

Adenylyl cyclases function to convert ATP to cyclic AMP in response to activation by a variety of hormones, neurotransmitters and other regulatory molecules. 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_{α_s}) for GTP, dissociation of $GTP-G_{\alpha_s}$ from $G_{\beta\gamma}$ and G_{α_s} -mediated activation of adenylyl cyclase. Adenylyl cyclase type VII (A cyclase VII) is expressed in specific nephron segments and renal proximal tubules. All of the AC isoforms, except VIII, are expressed in glomeruli. Ca^{2+} /calmodulin-independent isoform VII is localized to sites in position to the basolateral extensions of marginal cells and exhibits moderate staining in type II and type IV fibrocytes in rat cochlea. Sustained activation of cAMP system increases expression of A cyclase I, III, VI, VII and IV, whereas the level of AC II is decreased, and results in increase of cAMP accumulation. Acute activation of the D2 dopaminergic and m4 muscarinic receptors stimulates A cyclase VII, whereas chronic receptor activation leads to a reduction in A cyclase VII activity.

REFERENCES

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5. Nevo, I., et al. 1998. Regulation of adenylyl cyclase isozymes on acute and chronic activation of inhibitory receptors. *Mol. Pharmacol.* 54: 419-426.
6. Drescher, M.J., et al. 2000. Immunohistochemical localization of adenylyl cyclase isoforms in the lateral wall of the rat cochlea. *Brain Res. Mol. Brain Res.* 76: 289-298.
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8. Bek, M.J., et al. 2001. Differential expression of adenylyl cyclases in the rat nephron. *Kidney* 60: 890-899.

CHROMOSOMAL LOCATION

Genetic locus: ADCY7 (human) mapping to 16q12.1.

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

A cyclase VII 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see A cyclase VII shRNA Plasmid (h): sc-40323-SH and A cyclase VII shRNA (h) Lentiviral Particles: sc-40323-V as alternate gene silencing products.

For independent verification of A cyclase VII (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-40323A, sc-40323B and sc-40323C.

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

APPLICATIONS

A cyclase VII siRNA (h) is recommended for the inhibition of A cyclase VII 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 μ M in 66 μ 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 VII gene expression knockdown using RT-PCR Primer: A cyclase VII (h)-PR: sc-40323-PR (20 μ l). Annealing temperature for the primers should be $55-60^{\circ}$ C and the extension temperature should be $68-72^{\circ}$ C.