SANTA CRUZ BIOTECHNOLOGY, INC.

A cyclase V/VI siRNA (m): sc-43588

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 V (AC V) and VI (AC VI) have multiple messages. AC V and AC VI are highly expressed in heart. Unlike AC VI, AC V is expressed to a lesser extent in brain and is absent in a variety of other tissues. Both AC V and AC VI can be stimulated by NaF, guanosine 5'-[γ-thio]triphosphoate and Forskolin but not by Ca^{2+}/calmodulin. Activation of the D2 dopaminergic and m4 muscarine receptors inhibit the activity of adenylyl cyclase isozymes I, V, VI and VIII, whereas type II, IV and VII are stimulated and type III is not affected.

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. Katsushika, S., et al. 1992. Cloning and characterization of a sixth adenylyl cyclase isoform: Type V and VI constitute a subgroup within the mammalian adenylyl cyclase family. Proc. Natl. Acad. Sci. USA 89: 8774-8778.
4. Premont, R.T., et al. 1992. Two members of a widely expressed subfamily of hormone-stimulated adenyly cyclases. Proc. Natl. Acad. Sci. USA 89: 9809-9813.
5. Ishikawa, Y., et al. 1992. Isolation and characterization of a novel cardiac adenylylcyclase cDNA. J. Biol. Chem. 267: 13553-13557.
6. Tang, W.J. and Gilman, A.G. 1992. Adenylyl cyclases. Cell 70: 869-872.

CHROMOSOMAL LOCATION

Genetic locus: Adcy5 (mouse) mapping to 16 B3, Adcy6 (mouse) mapping to 15 F1.

PRODUCT

A cyclase V/VI siRNA (m) is a pool of 4 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 A cyclase V/VI shRNA Plasmid (m): sc-43588-SH and A cyclase V/VI shRNA (m) Lentiviral Particles: sc-43588-V as alternate gene silencing products.

For independent verification of A cyclase V/VI (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-43588A, sc-43588B, sc-43588C and sc-43588D.

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

A cyclase V/VI siRNA (m) is recommended for the inhibition of A cyclase V/VI 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.

GENE EXPRESSION MONITORING

A cyclase V/VI (B-6): sc-514785 is recommended as a control antibody for monitoring of A cyclase V/VI gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

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.