SANTA CRUZ BIOTECHNOLOGY, INC.

β_1-AR siRNA (h): sc-29580

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

β_1-AR (β_1-adrenergic receptors) bind cathecholamines (epinephrine, norepinephrine), and influence development, behavior, cardiac function, smooth muscle tone, and metabolism. β_1-ARs are present in the heart, juxtaglomerular cells, and in the central and peripheral nervous systems. β_1-AR and β_2-AR couple to G_s-proteins to activate adenylyl cyclase. The agonist-specific component of β_1-AR downregulation requires internalization correlating with receptor degradation, while the cAMP-specific component does not require internalization and is associated with downregulation of β_1-AR mRNA. Internalization of β_1-AR is both arrestin- and dynamin-dependent and follows the same clathrin-mediated endocytic pathway as β_2-AR.

REFERENCES

1. Lavoie, C., et al. 2002. β_1/β_2-adrenergic receptor heterodimerization regulates β_2-adrenergic receptor internalization and ERK signaling efficacy. J. Biol. Chem. 277: 35402-35410.
2. Wenzel-Seifert, K., et al. 2002. Similarities and differences in the coupling of human β_1- and β_2-adrenoceptors to $G_{s\,\alpha}$ splice variants. Biochem. Pharmacol. 64: 9-20.
3. Dunigan, C.D., et al. 2002. Complexity of agonist- and cyclic AMP-mediated downregulation of the human β_1-adrenergic receptor: role of internalization, degradation, and mRNA destabilization. Biochemistry 41: 8019-8030.
4. Liang, W., et al. 2004. Differences in endosomal targeting of human β_1- and β_2-adrenergic receptors following clathrin-mediated endocytosis. J. Cell Sci. 117: 723-734.
5. LocusLink Report (LocusID: 153). http://www.ncbi.nlm.nih.gov/LocusLink/

CHROMOSOMAL LOCATION

Genetic locus: ADRB1 (human) mapping to 10q25.3.

PRODUCT

β_1-AR 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see β_1-AR shRNA Plasmid (h): sc-29580-SH and β_1-AR shRNA (h) Lentiviral Particles: sc-29580-V as alternate gene silencing products.

For independent verification of β_1-AR (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-29580A, sc-29580B and sc-29580C.

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.

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

β_1-AR siRNA (h) is recommended for the inhibition of β_1-AR 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 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 β_1-AR gene expression knockdown using RT-PCR Primer: β_1-AR (h)-PR: sc-29580-PR (20 µl, 476 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.