SANTA CRUZ BIOTECHNOLOGY, INC.

β_3-AR siRNA (h): sc-105010

BACKGROUND

β_3-adrenergic receptors (β_3-ARs) bind cathecholamines (epinephrine, norepinephrine), and primarily regulate lipolysis and thermogenesis in adipose. β_3-ARs are present in adipose tissues, heart, and in smooth muscle of bladder, colon, small intestine, and stomach. The human corpus cavernosum exhibits basal β_3-AR-mediated vasorelaxant tone and activity is linked to inhibition of the RhoA/Rho-kinase pathway. β_3-AR interacts directly with the SH3 domain of Src through proline-rich motifs (PXXP) in the third intracellular loop and the carboxy-terminus.

REFERENCES

1. Danforth, E., Jr., et al. 1997. Obesity and diabetes and the β_3-AR. Eur. J. Endocrinol. 136: 362-365.
2. Gros, J., et al. 1999. Expression of human β_3-AR induces adipocyte-like features in CHO/K1 fibroblasts. J. Cell Sci. 112: 3791-3797.
3. Cao, W., et al. 2000. Direct binding of activated c-Src to the β_3-AR is required for MAP kinase activation. J. Biol. Chem. 275: 38131-38134.
4. Dixon, T.M., et al. 2001. CCAAT/enhancer-binding protein α is required for transcription of the β_3-AR gene during adipogenesis. J. Biol. Chem. 276: 722-728.
5. Steinle, J.J., et al. 2003. β_3-AR regulate retinal endothelial cell migration and proliferation. J. Biol. Chem. 278: 20681-20686.
6. Cirino, G., et al. 2003. Involvement of β_3-AR activation via cyclic GMP- but not NO-dependent mechanisms in human corpus cavernosum function. Proc. Natl. Acad. Sci. USA 100: 5531-5536.
7. Hao, K., et al. 2004. β_3-AR polymorphism and obesity-related phenotypes in hypertensive patients. Obes. Res. 12: 125-130.
8. LocusLink Report (LocusID: 3932). http://www.ncbi.nlm.nih.gov/LocusLink/

CHROMOSOMAL LOCATION

Genetic locus: ADRB3 (human) mapping to 8p11.23.

PRODUCT

β_3-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_3-AR shRNA Plasmid (h): sc-105010-SH and β_3-AR shRNA (h) Lentiviral Particles: sc-105010-V as alternate gene silencing products.

For independent verification of β_3-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-105010A, sc-105010B and sc-105010C.

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_3-AR siRNA (h) is recommended for the inhibition of β_3-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_3-AR gene expression knockdown using RT-PCR Primer: β_3-AR (h)-PR: sc-105010-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Hadi, T., et al. 2013. Biphasic ERK 1/2 activation sequentially involving G_s and G_i signaling is required in β_3-adrenergic receptor-induced primary smooth muscle cell proliferation. Biochim. Biophys. Acta 1833: 1041-1051.
2. Hadi, T., et al. 2017. β_3 adrenergic receptor stimulation in human macrophages inhibits NADPHoxidase activity and induces catalase expression via PPARγ activation. Biochim. Biophys. Acta 1864: 1769-1784.

RESEARCH USE

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