SANTA CRUZ BIOTECHNOLOGY, INC.

β-Arrestin-1 siRNA (m): sc-29742

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The members of the G protein-coupled receptor family are distinguished by their slow transmitting response to ligand binding. These seven transmembrane proteins include the adrenergic, serotonin and dopamine receptors. The effect of the signaling molecule can be excitatory or inhibitory depending on the type of receptor to which it binds. Members of the β-Arrestin family regulate receptor binding to G proteins. β-Arrestins have been found to be located at postsynaptic sites, where they are thought to act in concert with βARK (βARK1, also designated GRK 2, or βARK2, also designated GRK 3) to regulate G protein-coupled neurotransmitter receptors. Expression of β-Arrestin-1 and β-Arrestin-2 is seen predominantly in spleen and neuronal tissues. It has been shown that β-Arrestin-1 expression is modulated by intra-cellular cAMP, which may be a novel mechanism for the regulation of receptor-mediated responses.

REFERENCES

1. Hausdorff, W.P., et al. 1990. Two kinases mediate agonist-dependent phosphorylation and desensitization of the β_2-adrenergic receptor. Symp. Soc. Exp. Biol. 44: 225-240.
2. Cotecchia, S., et al. 1990. Multiple second messenger pathways of α-adrenergic receptor subtypes expressed in eukaryotic cells. J. Biol. Chem. 265: 63-69.

CHROMOSOMAL LOCATION

Genetic locus: Arrb1 (mouse) mapping to 7 E2.

PRODUCT

β-Arrestin-1 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 β-Arrestin-1 shRNA Plasmid (m): sc-29742-SH and β-Arrestin-1 shRNA (m) Lentiviral Particles: sc-29742-V as alternate gene silencing products.

For independent verification of β-Arrestin-1 (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-29742A, sc-29742B, sc-29742C and sc-29742D.

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.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

APPLICATIONS

β-Arrestin-1 siRNA (m) is recommended for the inhibition of β-Arrestin-1 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

β-Arrestin-1 (25-G10): sc-53780 is recommended as a control antibody for monitoring of β-Arrestin-1 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor β-Arrestin-1 gene expression knockdown using RT-PCR Primer: β-Arrestin-1 (m)-PR: sc-29742-PR (20 µl, 551 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Dominguez, R., et al. 2009. 17β-estradiol-mediated neuroprotection and ERK activation require a pertussis toxin-sensitive mechanism involving GRK 2 and β-Arrestin-1. J. Neurosci. 29: 4228-4238.
2. Erickson, C.E., et al. 2013. The β-blocker nebivolol is a GRK/β-Arrestin biased agonist. PLoS ONE 8: e71980.
3. Campo, G.M., et al. 2015. β-Arrestin-1 is involved in the catabolic response stimulated by hyaluronan degradation in mouse chondrocytes. Cell Tissue Res. 361: 567-579.
4. Zhang, J., et al. 2017. Different roles of β-Arrestin and the PKA pathway in mitochondrial Ros production induced by acute β-adrenergic receptor stimulation in neonatal mouse cardiomyocytes. Biochem. Biophys. Res. Commun. 489: 393-398.
5. Güven, B., et al. 2020. Metabolic effects of carvedilol through β-Arrestin proteins: investigations in streptozotocin-induced diabetes rat model and C2C12 myoblasts. Br. J. Pharmacol. 177: 5580-5594.
6. Kim, E.Y., et al. 2024. Role of formyl peptide receptors and β-arrestin-1 in suPAR signal transduction in mouse podocytes: interactions with $\alpha_V\beta_3$-integrin. Cells 13: 172.

RESEARCH USE

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