



$G_{\alpha s}$ siRNA (h): sc-29328

BACKGROUND

Heterotrimeric G proteins function to relay information from cell surface receptors to intracellular effectors. Each of a very broad range of receptors specifically detects an extracellular stimulus (a photon, pheromone, odorant, hormone or neurotransmitter) while the effectors (e.g., adenylyl cyclase), which act to generate one or more intracellular messengers, are less numerous. In mammals, G protein α , β and γ polypeptides are encoded by at least 16, 4 and 7 genes, respectively. Most interest in G proteins has been focused on their α subunits, since these proteins bind and hydrolyze GTP and most obviously regulate the activity of the best studied effectors. Evidence, however, has established an important regulatory role for the $\beta\gamma$ subunits. The G_s subfamily of G_{α} subunits includes two closely related proteins, $G_{\alpha s}$ and $G_{\alpha olf}$, which respectively stimulate adenylyl cyclase and mediate response to olfactory stimuli.

REFERENCES

1. Jones, D.T. and Reed, R.R. 1991. $G_{\alpha olf}$: an olfactory neuron-specific G protein involved in odorant signal transduction. *Science* 244: 790-795.
2. Simon, M.I., et al. 1991. Diversity of G proteins in signal transduction. *Science* 252: 802-808.
3. Iñiguez-Lluhi, J.A., et al. 1992. G protein $\beta\gamma$ subunits synthesized in Sf9 cells. *J. Biol. Chem.* 267: 23409-23417.

CHROMOSOMAL LOCATION

Genetic locus: GNAS (human) mapping to 20q13.32.

PRODUCT

$G_{\alpha s}$ 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 $G_{\alpha s}$ shRNA Plasmid (h): sc-29328-SH and $G_{\alpha s}$ shRNA (h) Lentiviral Particles: sc-29328-V as alternate gene silencing products.

For independent verification of $G_{\alpha s}$ (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-29328A, sc-29328B and sc-29328C.

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

$G_{\alpha s}$ siRNA (h) is recommended for the inhibition of $G_{\alpha s}$ 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.

GENE EXPRESSION MONITORING

$G_{\alpha s}$ (12): sc-135914 is recommended as a control antibody for monitoring of $G_{\alpha s}$ 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor $G_{\alpha s}$ gene expression knockdown using RT-PCR Primer: $G_{\alpha s}$ (h)-PR: sc-29328-PR (20 μ l, 455 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Bohnkamp, J. and Schöneberg, T. 2011. Cell adhesion receptor GPR133 couples to G_s protein. *J. Biol. Chem.* 286: 41912-41916.
2. Gupte, J., et al. 2012. Signaling property study of adhesion G protein-coupled receptors. *FEBS Lett.* 586: 1214-1219.
3. Demberg, L.M., et al. 2017. Activation of adhesion G protein-coupled receptors: agonist specificity of stachel sequence-derived peptides. *J. Biol. Chem.* 292: 4383-4394.
4. Alessio, N., et al. 2020. Increase of circulating IGFBP-4 following genotoxic stress and its implication for senescence. *Elife* 9: e54523.
5. Markova, V., et al. 2021. β -Arrestin 1 and 2 similarly influence μ -opioid receptor mobility and distinctly modulate adenylyl cyclase activity. *Cell. Signal.* 87: 110124.

RESEARCH USE

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