



$G_{\alpha q}$ siRNA (m): sc-35430

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. Four distinct classes of G_{α} subunits have been identified; these include G_s , G_i , G_q and $G_{12/13}$. The G_q class includes $G_{\alpha 15}$, $G_{\alpha 14}$, $G_{\alpha 11}$ and $G_{\alpha q}$, two of which, $G_{\alpha 11}$ and $G_{\alpha q}$ are abundant in brain and lung and present at lower levels in a variety of tissues.

REFERENCES

1. Strathmann, M. and Simon, M.I. 1990. G protein diversity: a distinct class of α subunits is present in vertebrates and invertebrates. *Proc. Natl. Acad. Sci. USA* 87: 9113-9117.
2. Simon, M.I., et al. 1991. Diversity of G proteins in signal transduction. *Science* 252: 802-808.

CHROMOSOMAL LOCATION

Genetic locus: *Gnaq* (mouse) mapping to 19 A.

PRODUCT

$G_{\alpha q}$ siRNA (m) 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 $G_{\alpha q}$ shRNA Plasmid (m): sc-35430-SH and $G_{\alpha q}$ shRNA (m) Lentiviral Particles: sc-35430-V as alternate gene silencing products.

For independent verification of $G_{\alpha q}$ (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-35430A, sc-35430B and sc-35430C.

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

$G_{\alpha q}$ siRNA (m) is recommended for the inhibition of $G_{\alpha q}$ 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 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

$G_{\alpha q}$ (10): sc-136181 is recommended as a control antibody for monitoring of $G_{\alpha q}$ 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 $G_{\alpha q}$ gene expression knockdown using RT-PCR Primer: $G_{\alpha q}$ (m)-PR: sc-35430-PR (20 μ l, 402 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Liu, X., et al. 2005. Rapid, Wnt-induced changes in GSK3 β associations that regulate β -catenin stabilization are mediated by G_{α} proteins. *Curr. Biol.* 15: 1989-1997.
2. Gao, Y. and Wang, H.Y. 2007. Inositol pentakisphosphate mediates Wnt/ β -catenin signaling. *J. Biol. Chem.* 282: 26490-26502.
3. Bikkavilli, R.K., et al. 2008. $G_{\alpha o}$ mediates WNT-JNK signaling through dishevelled 1 and 3, RhoA family members, and MEK1 and 4 in mammalian cells. *J. Cell Sci.* 121: 234-245.
4. Hatzia Apostolou, M., et al. 2011. Tumor progression locus 2 mediates signal-induced increases in cytoplasmic calcium and cell migration. *Sci. Signal.* 4: ra55.
5. Bo, Z., et al. 2016. Fluid shear stress promotes osteoblast proliferation via the $G_{\alpha q}$ -ERK5 signaling pathway. *Connect. Tissue Res.* 57: 299-306.

RESEARCH USE

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