SANTA CRUZ BIOTECHNOLOGY, INC.

RGS10 siRNA (m): sc-36411

BACKGROUND

Heterotrimeric G proteins function to relay information from cell surface receptors to intracellular effectors. 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. Several G_α GTPase-activating proteins (GAPs) have been identified and are designated RGS1 (regulator of G protein signaling), RGS2, RGS4, RGS7, RGS9, RGS10 and GAIP (G_α-interacting protein). Each of these proteins has been shown to deactivate specific G_α isoforms by increasing the rate at which they convert GTP to GDP. RGS1, RGS4 and GAIP bind tightly to and exhibit GAP activity towards $G_{\alpha\,i}$, $G_{\alpha\,o}$, and $G_{\alpha\,t}$, but not $G_{\alpha\,s}$. RGS10 increases the GTP hydrolytic activity of several members of the $G_{\alpha\,i}$ sub-family, including $G_{\alpha\,i\text{-}3}$, $G_{\alpha\,z}$, and $G_{\alpha\,o}$.

REFERENCES

1. Simon, M.I., et al. 1991. Diversity of G proteins in signal transduction. Science 252: 802-808.
2. Cali, J.J., et al. 1992. Selective tissue distribution of G protein γ subunits, including a new form of the γ subunits identified by cDNA cloning. J. Biol. Chem. 267: 24023-24027.
3. McLaughlin, S.K., et al. 1992. Gustducin is a taste-cell-specific G protein closely related to the transducins. Nature 357: 563-569.
4. von Weizsäcker, E., et al. 1992. Diversity among the β subunits of heterotrimeric GTP-binding proteins: characterization of a novel β-subunit cDNA. Biochem. Biophys. Res. Commun. 183: 350-356.
5. Kleuss, C., et al. 1992. Different β-subunits determine G protein interaction with transmembrane receptors. Nature 358: 424-426.
6. Conklin, B.R., et al. 1993. Structural elements of G_α subunits that interact with $G_{\beta\,\gamma}$, receptors, and effectors. Cell 73: 631-641.
7. Watson, N., et al. 1996. RGS family members: GTPase-activating proteins for heterotrimeric G protein α subunits. Nature 383: 172-175.
8. Hunt, T.W., et al. 1996. RGS10 is a selective activator of $G_{\alpha\,i}$ GTPase activity. Nature 383: 175-177.

CHROMOSOMAL LOCATION

Genetic locus: Rgs10 (mouse) mapping to 7 F3.

PRODUCT

RGS10 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see RGS10 shRNA Plasmid (m): sc-36411-SH and RGS10 shRNA (m) Lentiviral Particles: sc-36411-V as alternate gene silencing products.

For independent verification of RGS10 (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-36411A, sc-36411B and sc-36411C.

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

RGS10 siRNA (m) is recommended for the inhibition of RGS10 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor RGS10 gene expression knockdown using RT-PCR Primer: RGS10 (m)-PR: sc-36411-PR (20 µl, 515 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Alqinyah, M., et al. 2018. RGS10 regulates the expression of cyclooxygenase-2 and tumor necrosis factor α through a G protein-independent mechanism. Mol. Pharmacol. 94: 1103-1113.

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.