

RGS16 siRNA (h): sc-37161

BACKGROUND

Regulators of G protein signaling (RGS proteins) are a family of highly diverse, multifunctional signaling proteins that share a conserved 120 amino acid domain (RGS domain). RGS domains bind directly to activated G_{α} subunits and act as GTPase-activating proteins (GAPs) to attenuate and/or modulate hormone and neurotransmitter receptor-initiated signaling by both G_{α} -GTP and $G_{\beta\gamma}$. RGS proteins shorten the lifetime of the activated G protein. RGS16 is expressed at high levels in retina. Overexpression of RGS16 inhibits G protein-coupled mitogenic signal transduction and activation of the mitogen-activated protein kinase (MAPK) signaling cascade. RGS16 enhances the rate of GTP-hydrolysis by transducin, suggesting that RGS16 may play a role in regulating the kinetics of signaling in the phototransduction cascade. The gene which encodes RGS16 maps to human chromosome 1q25.3.

REFERENCES

1. Chen, C.K., et al. 1996. RGS-r, a retinal specific RGS protein, binds an intermediate conformation of transducin and enhances recycling. *Proc. Natl. Acad. Sci. USA* 93: 12885-12889.
2. Kardestuncer, T., et al. 1998. Cardiac myocytes express mRNA for ten RGS proteins: changes in RGS mRNA expression in ventricular myocytes and cultured atria. *FEBS Lett.* 438: 285-288.
3. Snow, B.E., et al. 1998. Cloning of a retinally abundant regulator of G protein signaling (RGS-r/RGS16): genomic structure and chromosomal localization of the human gene. *Gene* 206: 247-253.
4. Hepler, J.R. 1999. Emerging roles for RGS proteins in cell signalling. *Trends Pharmacol. Sci.* 20: 376-382.

CHROMOSOMAL LOCATION

Genetic locus: RGS16 (human) mapping to 1q25.3.

PRODUCT

RGS16 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 RGS16 shRNA Plasmid (h): sc-37161-SH and RGS16 shRNA (h) Lentiviral Particles: sc-37161-V as alternate gene silencing products.

For independent verification of RGS16 (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-37161A, sc-37161B and sc-37161C.

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

RGS16 siRNA (h) is recommended for the inhibition of RGS16 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

RGS16 (A-9): sc-166083 is recommended as a control antibody for monitoring of RGS16 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 RGS16 gene expression knockdown using RT-PCR Primer: RGS16 (h)-PR: sc-37161-PR (20 μ l, 599 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Zernecke, A., et al. 2009. Delivery of microRNA-126 by apoptotic bodies induces CXCL12-dependent vascular protection. *Sci. Signal.* 2: ra81.
2. Huang, R., et al. 2020. RGS16 promotes glioma progression and serves as a prognostic factor. *CNS Neurosci. Ther.* 26: 791-803.

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.