SANTA CRUZ BIOTECHNOLOGY, INC.

# RGS3 siRNA (m): sc-40662

## BACKGROUND

Heterotrimeric G proteins function to relay information from cell surface receptors to various intracellular effectors. G proteins comprise $\alpha$, $\beta$ and $\gamma$ subunits, and following activation, the $\alpha$ subunit binds GTP and dissociates from the $\beta\gamma$ complex. A large group of proteins have been identified as GTPase-activating proteins (GAPs), including the RGS (regulator of G protein signaling) family, which serve to deactivate specific $G_\alpha$ isoforms by increasing the rate at which they convert GTP to GDP. RGS3 is a protein of the RGS family that preferentially binds to the activated form of $G_{\alpha 11}$. Through this association, RGS3 inhibits $G_{\alpha 11}$-induced signaling, leading to a decrease in the accumulation of intracellular calcium and the inhibition of MAP kinase phosphorylation. RGS3 is highly expressed in adult kidney and myocardium, and it is primarily localized to the cytoplasm. Upon activation of $G_{\alpha 11}$, RGS3 translocates from the cytosol to the plasma membrane, thereby bringing RGS3 within close proximity to the targeted G protein.

## REFERENCES


1. Conklin, B.R., et al. 1993. Structural elements of $G_\alpha$ subunits that interact with $G_{\beta\gamma}$, receptors, and effectors. Cell 73: 631-641.
2. Druey, K.M., et al. 1996. Inhibition of G protein-mediated MAP kinase activation by a new mammalian gene family. Nature 379: 742-746.
3. Chatterjee, T.K., et al. 1997. Genomic organization, 5'-flanking region, and chromosomal localization of the human RGS3 gene. Genomics 45: 429-433.
4. Chatterjee, T.K., et al. 1997. A truncated form of RGS3 negatively regulates G protein-coupled receptor stimulation of adenylyl cyclase and phosphoinositide phospholipase C. J. Biol. Chem. 272: 15481-15487.
5. Guan, K.L., et al. 1999. A G protein signaling network mediated by an RGS protein. Genes Dev. 13: 1763-1767.
6. Gruning, W., et al. 1999. Modulation of renal tubular cell function by RGS3. Am. J. Physiol. 276: F535-F543.
7. Dulin, N.O., et al. 1999. RGS3 inhibits G protein-mediated signaling via translocation to the membrane and binding to $G_{\alpha 11}$. Mol. Cell. Biol. 19: 714-723.


## CHROMOSOMAL LOCATION

Genetic locus: Rgs3 (mouse) mapping to 4 B3.

## PRODUCT

RGS3 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 RGS3 shRNA Plasmid (m): sc-40662-SH and RGS3 shRNA (m) Lentiviral Particles: sc-40662-V as alternate gene silencing products.

For independent verification of RGS3 (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-40662A, sc-40662B and sc-40662C.

## 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

RGS3 siRNA (m) is recommended for the inhibition of RGS3 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 RGS3 gene expression knockdown using RT-PCR Primer: RGS3 (m)-PR: sc-40662-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## 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.