

# Rho GDI $\alpha$ siRNA (m): sc-36416

## BACKGROUND

Members of the Ras superfamily of small GTP-binding proteins are critical mediators of diverse cell signaling pathways, including those leading to cell proliferation, cytoskeletal organization and secretion. The counter-conversion of the active GTP-bound form of these proteins to their inactive GDP-bound form is influenced by two types of regulatory proteins: those that alter the intrinsic GTPase activity of the GTP-binding proteins and those that alter the rate of GDP/GTP exchange. Guanine nucleotide-releasing factors (GRFs) increase the GDP dissociation rate, while GDP-dissociation inhibitors (GDIs) decrease the dissociation rate. Rho GDI $\alpha$ , also known as ARHGDI1 or GDIA1, is a 204 amino acid member of the Rho GDI family of proteins. Localized to the cytoplasm, Rho GDI $\alpha$  inhibits the dissociation of GDP from Rho proteins, thereby preventing GTP from binding to and subsequently activating Rho proteins. In humans, Rho GDI $\alpha$  can be phosphorylated at Ser 101 by p21-activated kinase ( $\alpha$ PAK), an event that inhibits Rho GDI $\alpha$  activity and may result in positive feedback regulation of certain Rho GDI $\alpha$  target proteins.

## REFERENCES

1. Leffers, H., et al. 1993. Identification of two human Rho GDP dissociation inhibitor proteins whose overexpression leads to disruption of the actin cytoskeleton. *Exp. Cell Res.* 209: 165-174.
2. Wagner, T., et al. 1997. A somatic cell hybrid panel for distal 17q: GDIA1 maps to 17q25.3. *Cytogenet. Cell Genet.* 76: 172-175.
3. Di-Poi, N., et al. 2001. Mechanism of NADPH oxidase activation by the Rac/Rho-GDI complex. *Biochemistry* 40: 10014-10022.

## CHROMOSOMAL LOCATION

Genetic locus: Arhgdia (mouse) mapping to 11 E2.

## PRODUCT

Rho GDI $\alpha$  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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Rho GDI $\alpha$  shRNA Plasmid (m): sc-36416-SH and Rho GDI $\alpha$  shRNA (m) Lentiviral Particles: sc-36416-V as alternate gene silencing products.

For independent verification of Rho GDI $\alpha$  (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-36416A, sc-36416B and sc-36416C.

## 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

Rho GDI $\alpha$  siRNA (m) is recommended for the inhibition of Rho GDI $\alpha$  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  $\mu$ M in 66  $\mu$ 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

Rho GDI $\alpha$  (G-2): sc-373724 is recommended as a control antibody for monitoring of Rho GDI $\alpha$  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 $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Rho GDI $\alpha$  gene expression knockdown using RT-PCR Primer: Rho GDI $\alpha$  (m)-PR: sc-36416-PR (20  $\mu$ 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. Sun, J. and Barbieri, J.T. 2004. ExoS Rho GTPase-activating protein activity stimulates reorganization of the actin cytoskeleton through Rho GTPase guanine nucleotide disassociation inhibitor. *J. Biol. Chem.* 279: 42936-42944.
2. Schulz, A., et al. 2013. Merlin isoform 2 in neurofibromatosis type 2-associated polyneuropathy. *Nat. Neurosci.* 16: 426-433.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.