SANTA CRUZ BIOTECHNOLOGY, INC.

Rock-2 siRNA (m): sc-36433

BACKGROUND

Rho, the Ras-related small GTPase, is responsible for the regulation of Actin-based cytoskeletal structures, including stress fibers, focal adhesions and the contractile ring apparatus. Rho proteins function as molecular switches that are able to turn cytokinesis on and off. Although little is known about signaling downstream of Rho, a host of putative Rho effector proteins have been described, including rhophilin, Rhotekin, citron and the serine/threonine kinase, protein kinase N. Two additional Rho-activated serine/threonine kinases have been described, designated Rock-1 and Rock-2 (also referred to as Roka) for Rho-associated coil-containing protein kinase. Rock-1 and Rock-2 share a structural similarity with myotonic dystrophy kinase.

CHROMOSOMAL LOCATION

Genetic locus: Rock2 (mouse) mapping to 12 A1.1.

PRODUCT

Rock-2 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 Rock-2 shRNA Plasmid (m): sc-36433-SH and Rock-2 shRNA (m) Lentiviral Particles: sc-36433-V as alternate gene silencing products.

For independent verification of Rock-2 (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-36433A, sc-36433B and sc-36433C.

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

Rock-2 siRNA (m) is recommended for the inhibition of Rock-2 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.

GENE EXPRESSION MONITORING

Rock-2 (D-11): sc-398519 is recommended as a control antibody for monitoring of Rock-2 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 Rock-2 gene expression knockdown using RT-PCR Primer: Rock-2 (m)-PR: sc-36433-PR (20 µl, 472 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, Z. and Kostenko, E.V. 2006. Transformation by the Rho-specific guanine nucleotide exchange factor Dbs requires ROCK I-mediated phosphorylation of myosin light chain. J. Biol. Chem. 281: 16043-16051.
2. Matoba, K., et al. 2013. Rho-kinase inhibition prevents the progression of diabetic nephropathy by downregulating hypoxia-inducible factor 1α. Kidney Int. 84: 545-554.
3. Lai, J., et al. 2015. WEHI-3 cells inhibit adipocyte differentiation in 3T3-L1 cells. Biochem. Biophys. Res. Commun. 462: 105-111.
4. Zandi, S., et al. 2015. ROCK-isoform-specific polarization of macrophages associated with age-related macular degeneration. Cell Rep. 10: 1173-1186.
5. Yuan, X., et al. 2016. Ciliary IFT80 balances canonical versus non-canonical hedgehog signalling for osteoblast differentiation. Nat. Commun. 7: 11024.
6. Li, Y., et al. 2021. Vascular stiffening mediated by Rho-associated coiled-coil containing kinase isoforms. J. Am. Heart Assoc. 10: e022568.
7. Chatterjee, S., et al. 2022. Protective role of Decylubiquinone against secondary melanoma at lung in B16F10 induced mice by reducing E-cadherin expression and ameliorating ROCKII-Limk1/2-Cofiliin mediated metastasis. Cell. Signal. 101: 110486.
8. Dogsom, O., et al. 2023. The complex of p-Tyr42 RhoA and p-p65/RelA in response to LPS regulates the expression of phosphoglycerate kinase 1. Antioxidants 12: 2090.

RESEARCH USE

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