SANTA CRUZ BIOTECHNOLOGY, INC.

Rho A siRNA (m): sc-36414

BACKGROUND

The Ras p21 family of guanine nucleotide proteins has been widely studied in view of its apparent role in signal transduction pathways and high frequency of mutations in human malignancies. It is now clear, however, that the Ras proteins (H-, K- and N-Ras p21) are members of a much larger superfamily of related proteins. Six members of this family, Rap 1A, Rap 1B, Rap 2, R-Ras, Ral A and Ral B, exhibit approximately 50% amino acid homology to Ras. The six mammalian Rho proteins (Rho A, B, C, G, 7 and 8) are approximately 30% homologous to Ras and are expressed in a wide range of cell types. Both Ras p21 and Rho p21, as well as other members of the Ras superfamily, contain a carboxy-terminal CAAX sequence (C, cysteine; A, aliphatic amino acid; X, any amino acid) which in the case of Ras has been shown to be essential for correct localization and function.

CHROMOSOMAL LOCATION

Genetic locus: Rhoa (mouse) mapping to 9 F2.

PRODUCT

Rho A 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 Rho A shRNA Plasmid (m): sc-36414-SH and Rho A shRNA (m) Lentiviral Particles: sc-36414-V as alternate gene silencing products.

For independent verification of Rho A (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-36414A, sc-36414B and sc-36414C.

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

Rho A siRNA (m) is recommended for the inhibition of Rho A 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

Rho A (26C4): sc-418 is recommended as a control antibody for monitoring of Rho A 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Rho A gene expression knockdown using RT-PCR Primer: Rho A (m)-PR: sc-36414-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Yang, S., et al. 2011. Mechanisms by which the inhibition of specific intracellular signaling pathways increase osteoblast proliferation on apatite surfaces. Biomaterials 32: 2851-2861.
2. Riganti, C., et al. 2011. Atorvastatin modulates anti-proliferative and pro-proliferative signals in Her2/neu-positive mammary cancer. Biochem. Pharmacol. 82: 1079-1089.
3. Yang, S. and Kim, H.M. 2012. The RhoA-ROCK-PTEN pathway as a molecular switch for anchorage dependent cell behavior. Biomaterials 33: 2902-2915.
4. Li, L., et al. 2016. Fine tuning of Rac1 and Rho A alters cuspal shapes by remolding the cellular geometry. Sci. Rep. 6: 37828.
5. Jeannot, P., et al. 2017. $p27^{Kip1}$ promotes invadopodia turnover and invasion through the regulation of the PAK1/Cortactin pathway. Elife 6: e22207.
6. Kim, J.G., et al. 2017. Wnt3A induces GSK-3β phosphorylation and β-catenin accumulation through Rho A/ROCK. J. Cell. Physiol. 232: 1104-1113.
7. Hou, L., et al. 2018. Integrin CD11b mediates α-synuclein-induced activation of NADPH oxidase through a Rho-dependent pathway. Redox Biol. 14: 600-608.
8. Cap, K.C., et al. 2020. Distinct dual roles of p-Tyr42 RhoA GTPase in Tau phosphorylation and ATP citrate lyase activation upon different Aβ concentrations. Redox Biol. 32: 101446.
9. Kim, D.Y., et al. 2019. Eucalyptol ameliorates dysfunction of Actin cytoskeleton formation and focal adhesion assembly in glucose-loaded podocytes and diabetic kidney. Mol. Nutr. Food Res. 63: e1900489.

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.