SANTA CRUZ BIOTECHNOLOGY, INC.

Rac 1 siRNA (m): sc-36352

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The Power to Question

BACKGROUND

A large number of low molecular weight, GTP binding proteins of the Ras superfamily have been identified. These proteins regulate many fundamental processes in all eukaryotic cells such as growth, vesicle traffic and cytoskeletal organization. GTPase-activating proteins (GAPs) accelerate the intrinsic rate of GTP hydrolysis of Ras-related proteins, resulting in down-regulation of their active form. Two proteins in this family, Rac 1 and Rac 2, are 92% identical and share GTP binding and GTP hydrolysis motifs with other members of the Ras superfamily. Rac 1 is expressed in a large number of different cell types. Rac 2 is primarily expressed only in myeloid cells and has been reported to be a regulatory component of the human neutrophil NADPH oxidase.

CHROMOSOMAL LOCATION

Genetic locus: Rac1 (mouse) mapping to 5 G2.

PRODUCT

Rac 1 siRNA (m) is a target-specific 19-25 nt siRNA 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 Rac 1 shRNA Plasmid (m): sc-36352-SH and Rac 1 shRNA (m) Lentiviral Particles: sc-36352-V as alternate gene silencing products.

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

Rac 1 siRNA (m) is recommended for the inhibition of Rac 1 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.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

GENE EXPRESSION MONITORING

Rac 1/2/3 (G-2): sc-514583 is recommended as a control antibody for monitoring of Rac 1 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 Rac 1 gene expression knockdown using RT-PCR Primer: Rac 1 (m)-PR: sc-36352-PR (20 µl, 477 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Bikkavilli, R.K., et al. 2008. $G_{\alpha\ 0}$ mediates Wnt-JNK signaling through dishevelled 1 and 3, RhoA family members, and MEKK 1 and 4 in mammalian cells. J. Cell Sci. 121: 234-245.
2. Madrigal-Matute, J., et al. 2015. TWEAK/Fn14 interaction promotes oxidative stress through NADPH oxidase activation in macrophages. Cardiovasc. Res. 108: 139-147.
3. Gautam, S., et al. 2015. Aegeline from *Aegle marmelos* stimulates glucose transport via Akt and Rac1 signaling, and contributes to a cytoskeletal rearrangement through PI3K/Rac1. Eur. J. Pharmacol. 762: 419-429.
4. Shahi, P., et al. 2015. The transcriptional repressor ZNF503/Zeppo2 promotes mammary epithelial cell proliferation and enhances cell invasion. J. Biol. Chem. 290: 3803-3813.
5. Gervais, E.M., et al. 2016. Par-1b is required for morphogenesis and differentiation of myoepithelial cells during salivary gland development. Organogenesis 12: 194-216.
6. Jeannot, P., et al. 2017. $p27^{Kip1}$ promotes invadopodia turnover and invasion through the regulation of the PAK1/Cortactin pathway. Elife 6: e22207.
7. Yao, L., et al. 2022. Temporal control of PDGFRα regulates the fibroblast-to-myofibroblast transition in wound healing. Cell Rep. 40: 111192.

RESEARCH USE

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