SANTA CRUZ BIOTECHNOLOGY, INC.

Rnd1 siRNA (h): sc-106516

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 five mammalian Rho proteins (Rho A, B, C, 7 and 8) are approximately 30% homologous to Ras and are expressed in a wide range of cell types. Three Rho-related GTPases, Rnd1 (Rho 6), Rnd2 (Rho 7), and Rnd3 (Rho 8 or Rho E), form a distinct branch of the Rho family, since they differ from other Rho proteins in size, charge, and biochemical properties. Rnd proteins are likely to be farnesylated. All three appear to be constitutively in the activated GTP-bound form. Expression of Rnd1 or Rho 8 in mammalian cells inhibits the formation of Actin stress fibers, membrane ruffles, and integrin-based focal adhesions, and induces loss of cell-substrate adhesion leading to cell rounding. This latter phenotype has resulted in the designation of the protein group Rnd, for "round". Rnd proteins act as negative regulators of Actin assembly and of cell adhesion.

REFERENCES

1. Madaule, P. and Axel, R. 1985. A novel Ras-related gene family. Cell 41: 31-40.
2. Barbacid, M. 1987. Ras genes. Annu. Rev. Biochem. 56: 779-827.
3. Yeramian, P., et al. 1987. Nucelotide sequence of human Rho cDNA clone 12. Nucleic Acids Res. 15: 189.
4. Olofsson, B., et al. 1988. Expression of the Ras-related Ral A, Rho 12 and Rab genes in adult mouse tissues. Oncogene 3: 231-234.
5. Chardin, P. 1988. The Ras superfamily proteins. Biochimie 70: 865-868.
6. Morris, J.D.M., et al. 1989. Scrape-loading of Swiss 3T3 cells with Ras protein rapidly activates protein kinase C in the absence of phospholinositide hydrolysis. Oncogene 4: 27-31.

CHROMOSOMAL LOCATION

Genetic locus: RND1 (human) mapping to 12q13.12.

PRODUCT

Rnd1 siRNA (h) 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 Rnd1 shRNA Plasmid (h): sc-106516-SH and Rnd1 shRNA (h) Lentiviral Particles: sc-106516-V as alternate gene silencing products.

For independent verification of Rnd1 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-106516A, sc-106516B and sc-106516C.

RESEARCH USE

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

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

Rnd1 siRNA (h) is recommended for the inhibition of Rnd1 expression in human 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 Rnd1 gene expression knockdown using RT-PCR Primer: Rnd1 (h)-PR: sc-106516-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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