SANTA CRUZ BIOTECHNOLOGY, INC.

Ras-GRF2 siRNA (m): sc-36396

BACKGROUND

A critical step in signal transduction responses to stimulation of cell surface receptors by their ligands involves the accumulation of Ras proteins in their active GTP-bound state. To reach their active GTP-bound state, Ras proteins must first release bound GDP, a rate limiting step mediated by a guanine nucleotide releasing factor (GRF). The mammalian Ras p21 GRF protein has been designated Ras-GRF1 p140. Ras-GRF1 accelerates release of GDP from H- and N-Ras p21 protein *in vitro,* but not from the related Ral A or Cdc42Hs GTP-binding proteins. Of interest, a region mapping within the amino terminal domain of Ras-GRF1 is similar to both the human breakpoint cluster protein, Bcr, and the Dbl proto-oncogene product, a guanine nucleotide-releasing factor for Cdc42Hs. Ras-GRF2 p135 has also been identified. Ras-GRF2 p135 is highly homologous to Ras-GRF1 p140 except in the region between the REM and CDC25 domains and appears to function similarly to Ras-GRF1 p140.

REFERENCES

1. Ron, D., et al. 1988. Molecular cloning and characterization of the human dbl proto-oncogene: evidence that its overexpression is sufficient to transform NIH/3T3 cells. EMBO J. 7: 2465-2473.
2. Downward, J., et al. 1990. Stimulation of $p21^{Ras}$ upon T cell activation. Nature 346: 719-723.
3. Gibbs, J.B., et al. 1990. Modulation of guanine nucleotides bound to Ras in NIH/3T3 cells by oncogenes, growth factors, and the GTPase activating protein (GAP). J. Biol. Chem. 265: 20437-20442.
4. Wolfman, A., et al. 1990. Cytosolic protein catalyzes the release of GDP from $p21^{Ras}$. Science 248: 247-249.
5. Downward, J., et al. 1990. Identification of a nucleotide exchange-promoting activity for $p21^{Ras}$. Proc. Natl. Acad. Sci. USA 87: 5998-6002.
6. Hart, M.J., et al. 1991. Catalysis of guanine nucleotide exchange on the Cdc42Hs protein by the Dbl oncogene product. Nature 354: 311-313.
7. Shou, C., et al. 1992. Molecular cloning of cDNAs encoding a guanine-nucleotide-releasing factor for Ras p21. Nature 358: 351-354.
8. Fam, N.P., et al. 1997. Cloning and characterization of Ras-GRF2, a novel guanine nucleotide exchange factor for Ras. Mol. Cell. Biol. 17: 1396-1406.

CHROMOSOMAL LOCATION

Genetic locus: Rasgrf2 (mouse) mapping to 13 C3.

PRODUCT

Ras-GRF2 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 Ras-GRF2 shRNA Plasmid (m): sc-36396-SH and Ras-GRF2 shRNA (m) Lentiviral Particles: sc-36396-V as alternate gene silencing products.

For independent verification of Ras-GRF2 (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-36396A, sc-36396B and sc-36396C.

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

Ras-GRF2 siRNA (m) is recommended for the inhibition of Ras-GRF2 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Ras-GRF2 gene expression knockdown using RT-PCR Primer: Ras-GRF2 (m)-PR: sc-36396-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. Wang, Q., et al. 2011. Focal adhesions and Ras are functionally and spatially integrated to mediate IL-1 activation of ERK. FASEB J. 25: 3448-3464.

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.