

# N-Ras siRNA (h): sc-36004

## BACKGROUND

The mammalian Ras (also designated v-Ha-Ras, Harvey rat sarcoma viral oncogene homolog, HRAS1, K-Ras, N-Ras, RASH1 or c-bas/has) gene family consists of the Harvey and Kirsten Ras genes (c-H-Ras1 and c-K-Ras2), an inactive pseudogene of each (c-H-Ras2 and c-K-Ras1) and the N-Ras gene. The three Ras oncogenes, H-Ras, K-Ras and N-Ras, encode proteins with GTP/GDP binding and GTPase activity. Ras proteins alternate between an inactive form bound to GDP and an active form bound to GTP, activated by a guanine nucleotide-exchange factor (GEF) and inactivated by a GTPase-activating protein (GAP). Ras nomenclature originates from the characterization of human DNA sequences homologous to cloned DNA fragments containing oncogenic sequences of a type C mammalian retrovirus, the Harvey strain of murine sarcoma virus (HaMSV), derived from the rat. Under normal conditions, Ras family members influence cell growth and differentiation events in a subcellular membrane compartmentalization-based signaling system. Oncogenic Ras can deregulate processes that control both cell proliferation and apoptosis. The Ras superfamily of GTP hydrolysis-coupled signal transduction relay proteins can be subclassified into Ras, Rho, Rab and ARF families.

## CHROMOSOMAL LOCATION

Genetic locus: NRAS (human) mapping to 1p13.2.

## PRODUCT

N-Ras 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see N-Ras shRNA Plasmid (h): sc-36004-SH and N-Ras shRNA (h) Lentiviral Particles: sc-36004-V as alternate gene silencing products.

For independent verification of N-Ras (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-36004A, sc-36004B and sc-36004C.

## 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

N-Ras siRNA (h) is recommended for the inhibition of N-Ras expression in human cells.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.

## 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  $\mu$ M in 66  $\mu$ l. 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.

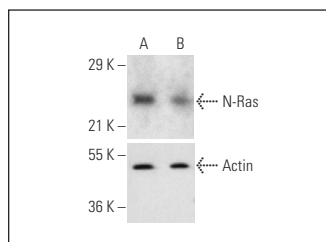
## GENE EXPRESSION MONITORING

N-Ras (F155): sc-31 is recommended as a control antibody for monitoring of N-Ras 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 N-Ras gene expression knockdown using RT-PCR Primer: N-Ras (h)-PR: sc-36004-PR (20  $\mu$ l, 518 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## DATA



N-Ras siRNA (h): sc-36004. Western blot analysis of N-Ras expression in non-transfected control (A) and N-Ras siRNA transfected (B) HeLa cells. Blot probed with N-Ras (F155): sc-31. Actin (I-19): sc-1616 used as specificity and loading control.

## SELECT PRODUCT CITATIONS

1. Koh, M.S. and Moon, A. 2011. Activation of H-Ras and Rac1 correlates with epidermal growth factor-induced invasion in Hs578T and MDA-MB-231 breast carcinoma cells. *Biochem. Biophys. Res. Commun.* 406: 25-29.
2. Sun, D., et al. 2013. RAS/MEK-independent gene expression reveals BMP2-related malignant phenotypes in the Nf1-deficient MPNST. *Mol. Cancer Res.* 11: 616-627.
3. Ahn, J.H. and Lee, M. 2014. The siRNA-mediated downregulation of N-Ras sensitizes human melanoma cells to apoptosis induced by selective BRAF inhibitors. *Mol. Cell. Biochem.* 392: 239-247.

## RESEARCH USE

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