SANTA CRUZ BIOTECHNOLOGY, INC.

# H-Ras siRNA (r): sc-108004

## 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.

## REFERENCES


1. Wong-Staal, F., et al. 1981. Three distinct genes in human DNA related to the transforming genes of mammalian sarcoma retroviruses. Science 213: 226-228.
2. Cox, A.D. and Der, C.J. 2003. The dark side of Ras: regulation of apoptosis. Oncogene 22: 8999-9006.
3. Colicelli, J. 2004. Human Ras superfamily proteins and related GTPases. Sci. STKE 2004: RE13.
4. Weber, M.J. and Gioeli, D. 2004. Ras signaling in prostate cancer progression. J. Cell. Biochem. 91: 13-25.
5. Giehl, K. 2005. Oncogenic Ras in tumor progression and metastasis. Biol. Chem. 386: 193-205.


## CHROMOSOMAL LOCATION

Genetic locus: Hras (rat) mapping to 1q41.

## PRODUCT

H-Ras siRNA (r) is a pool of 2 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 H-Ras shRNA Plasmid (r): sc-108004-SH and H-Ras shRNA (r) Lentiviral Particles: sc-108004-V as alternate gene silencing products.

For independent verification of H-Ras (r) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-108004A and sc-108004B.

## PROTOCOLS

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

H-Ras siRNA (r) is recommended for the inhibition of H-Ras expression in rat 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

H-Ras (259): sc-35 is recommended as a control antibody for monitoring of H-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 H-Ras gene expression knockdown using RT-PCR Primer: H-Ras (r)-PR: sc-108004-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. Kowluru, R.A. and Kanwar, M. 2009. Translocation of H-Ras and its implications in the development of diabetic retinopathy. Biochem. Biophys. Res. Commun. 387: 461-466.
2. Kowluru, R.A. 2010. Role of matrix metalloproteinase-9 in the development of diabetic retinopathy and its regulation by H-Ras. Invest. Ophthalmol. Vis. Sci. 51: 4320-4326.
3. Ramos-Kuri, M., et al. 2015. Dominant negative Ras attenuates pathological ventricular remodeling in pressure overload cardiac hypertrophy. Biochim. Biophys. Acta 1853: 2870-2884.


## RESEARCH USE

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