



# Rak siRNA (h): sc-39231

## BACKGROUND

Src is the human homolog of the v-Src gene of the Rous sarcoma virus, also known as avian sarcoma virus or ASV. Src is the first proto-oncogenic non-receptor tyrosine kinase characterized in human. By virtue of common structural motifs, the Src family is composed of nine members in vertebrates, including Src, Yes, Fgr, Frk, Fyn, Lyn, Hck, Lck and Blk. Src-family kinases transduce signals that are involved in the control of a variety of cellular processes, including proliferation, differentiation, motility and adhesion. Src-family kinases contain an amino-terminal cell membrane anchor followed by an SH3 domain (involved in modular association) and an SH2 domain (involved in activation). Rak (also designated GTK, PTK5 and Frk, for fyn-related kinase) is an epithelial tissue-specific kinase. The human Rak gene maps to chromosome 6q22.1 and encodes a 505 amino acid protein.

## REFERENCES

1. Sakaguchi, A.Y., et al. 1982. Organization of human proto-oncogenes. *Am. J. Hum. Genet.* 34: 175.
2. Tronick, S.R., et al. 1985. Isolation and chromosomal localization of the human fgr protooncogene, a distinct member of the tyrosine kinase gene family. *Proc. Natl. Acad. Sci. USA* 82: 6595-6599.
3. Williams, J.C., et al. 1998. Insights into Src kinase functions: structural comparisons. *Trends Biochem. Sci.* 23: 179-184.
4. Tatossyan, A.G., et al. 2000. Kinases of the Src family: structure and functions. *Biochemistry* 65: 49-58.
5. Bjorge, J.D., et al. 2000. Selected glimpses into the activation and function of Src kinase. *Oncogene* 19: 5620-5635.
6. Korade-Mirnic, Z., et al. 2000. Src kinase-mediated signaling in leukocytes. *J. Leukoc. Biol.* 68: 603-613.

## CHROMOSOMAL LOCATION

Genetic locus: FRK (human) mapping to 6q22.1.

## PRODUCT

Rak siRNA (h) 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Rak shRNA Plasmid (h): sc-39231-SH and Rak shRNA (h) Lentiviral Particles: sc-39231-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  $\mu$ 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

Rak siRNA (h) is recommended for the inhibition of Rak 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  $\mu$ 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

Rak (H-12): sc-166478 is recommended as a control antibody for monitoring of Rak 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-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  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 Rak gene expression knockdown using RT-PCR Primer: Rak (h)-PR: sc-39231-PR (20  $\mu$ l, 501 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Ogunbolude, Y., et al. 2017. FRK inhibits breast cancer cell migration and invasion by suppressing epithelial-mesenchymal transition. *Oncotarget* 8: 113034-113065.

## RESEARCH USE

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

## PROTOCOLS

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