SANTA CRUZ BIOTECHNOLOGY, INC.

RASAL1 siRNA (h): sc-76351

BACKGROUND

RASAL1 (Ras protein activator like 1) is an 804 amino acid protein that exists as two alternatively spliced isoforms and contains one Rag-GAP domain, one PH domain, one Btk-type zinc finger and two C2 domains. Expressed at high levels in thyroid and adrenal medulla and present at lower levels in trachea, brain and spinal cord, RASAL1 is thought to function as an inhibitory regulator of the Ras-cyclic AMP pathway, possibly enhancing Ras GTPase activity and playing a role in the regulation of cellular proliferation and differentiation. Lowered expression of RASAL1 is associated with the progression of several types of human cancers, suggesting a role for RASAL1 in tumor suppression and apoptotic control.

REFERENCES

1. Allen, M., et al. 1998. Restricted tissue expression pattern of a novel human Ras GAP-related gene and its murine ortholog. Gene 218: 17-25.
2. Schmitt, J.M. and Stork, P.J. 2002. G_{α} and $G_{\beta\gamma}$ require distinct Src-dependent pathways to activate Rap1 and Ras. J. Biol. Chem. 277: 43024-43032.
3. Kolfschoten, I.G., et al. 2005. A genetic screen identifies PITX1 as a suppressor of RAS activity and tumorigenicity. Cell 121: 849-858.
4. Liu, Q., et al. 2005. CAPRI and RASAL impose different modes of information processing on RAS due to contrasting temporal filtering of Ca^{2+}. J. Cell Biol. 170: 183-190.
5. Jin, H., et al. 2007. Epigenetic silencing of a Ca^{2+}-regulated Ras GTPase-activating protein RASAL defines a new mechanism of RAS activation in human cancers. Proc. Natl. Acad. Sci. USA 104: 12353-12358.
6. Online Mendelian Inheritance in Man, OMIM™. 2007. Johns Hopkins University, Baltimore, MD. MIM Number: 604118. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
7. Ohta, M., et al. 2009. Decreased expression of the RAS-GTPase activating protein RASAL1 is associated with colorectal tumor progression. Gastroenterology 136: 206-216.

CHROMOSOMAL LOCATION

Genetic locus: RASAL1 (human) mapping to 12q24.13.

PRODUCT

RASAL1 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 RASAL1 shRNA Plasmid (h): sc-76351-SH and RASAL1 shRNA (h) Lentiviral Particles: sc-76351-V as alternate gene silencing products.

For independent verification of RASAL1 (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-76351A, sc-76351B and sc-76351C.

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

RASAL1 siRNA (h) is recommended for the inhibition of RASAL1 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.

GENE EXPRESSION MONITORING

RASAL1 (B-2): sc-398025 is recommended as a control antibody for monitoring of RASAL1 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 RASAL1 gene expression knockdown using RT-PCR Primer: RASAL1 (h)-PR: sc-76351-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.