SANTA CRUZ BIOTECHNOLOGY, INC.

ARHGAP15 siRNA (h): sc-94966

BACKGROUND

GTPase-activating proteins (GAPs) accelerate the intrinsic rate of GTP hydrolysis of Ras-related proteins, resulting in downregulation of their active form. ARHGAP15 (Rho GTPase activating protein 15) is a 475 amino acid peripheral membrane protein that contains one C-terminal Rho-GAP domain, which is highly similar to GAP domains of both ARHGAP9 and ARHGAP12, and one N-terminal pleckstrin homology (PH) domain, which is required for membrane localization. ARHGAP15 also localizes to cytoplasm and is expressed in lung, liver and lymphoid cells. Overexpression of ARHGAP15 results in an increase of actin stress fibers and in cell contraction. Conserved in chimpanzee, canine, bovine, mouse, rat, chicken and zebrafish, ARHGAP15 functions as a GTPase activator for Rho-type GTPases by converting them to an inactive GDP-bound state. ARHGAP15 also exhibits specificity toward Rac 1 *in vitro*. HeLa cells expressing ARHGAP15 are resistant to phorbol ester treatment, suggesting that ARHGAP15 is also a regulator of Rac 1.

REFERENCES

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2. Siepel, A., et al. 2005. Evolutionarily conserved elements in vertebrate, insect, worm, and yeast genomes. Genome Res. 15: 1034-1050.
3. Lavelin, I., et al. 2005. Characterization of a novel GTPase-activating protein associated with focal adhesions and the actin cytoskeleton. J. Biol. Chem. 280: 7178-7185.
4. Kandpal, R.P. 2006. Rho GTPase activating proteins in cancer phenotypes. Curr. Protein Pept. Sci. 7: 355-365.
5. Liu, X.L., et al. 2007. Differential gene expression in human hematopoietic stem cells specified toward erythroid, megakaryocytic, and granulocytic lineage. J. Leukoc. Biol. 82: 986-1002.
6. Costa, C., et al. 2007. Negative feedback regulation of Rac in leukocytes from mice expressing a constitutively active phosphatidylinositol 3-kinase gamma. Proc. Natl. Acad. Sci. USA 104: 14354-14359.
7. Matsuda, M., et al. 2008. Identification of adherens junction-associated GTPase activating proteins by the fluorescence localization-based expression cloning. Exp. Cell Res. 314: 939-949.

CHROMOSOMAL LOCATION

Genetic locus: ARHGAP15 (human) mapping to 2q22.2.

PRODUCT

ARHGAP15 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 ARHGAP15 shRNA Plasmid (h): sc-94966-SH and ARHGAP15 shRNA (h) Lentiviral Particles: sc-94966-V as alternate gene silencing products.

For independent verification of ARHGAP15 (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-94966A, sc-94966B and sc-94966C.

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

ARHGAP15 siRNA (h) is recommended for the inhibition of ARHGAP15 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor ARHGAP15 gene expression knockdown using RT-PCR Primer: ARHGAP15 (h)-PR: sc-94966-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.