SANTA CRUZ BIOTECHNOLOGY, INC.

ARHGEF15 siRNA (m): sc-141223

BACKGROUND

Rho GTPases, which play fundamental roles in numerous cellular processes, are initiated by external stimuli that signal though G protein-coupled receptors. ARHGEF15 (Rho guanine nucleotide exchange factor (GEF) 15), also known as ARGEF15 or Vsm-RhoGEF, is a 841 amino acid protein expressed in the vascular smooth muscle of coronary artery. ARHGEF15 functions as a specific guanine nucleotide exchange factor for RhoA and interacts with ephrin-A4 in vascular smooth muscle cells. Containing one DH (DBL-homology) domain, ARHGEF15 is phosphorylated on tyrosine residues upon ephrin-A1 stimulation. The DH domain consists of a region of about 150 amino acids that induces Rho family GTPases to release GDP. This effectively activates the Rho GTPase by allowing GTP binding. ARHGEF15 is encoded by a gene located on human chromosome 17p13.1, which comprises over 2.5% of the human genome and encodes over 1,200 genes.

REFERENCES

1. Chan, A.M., et al. 1994. Expression cDNA cloning of a novel oncogene with sequence similarity to regulators of small GTP-binding proteins. Oncogene 9: 1057-1063.
2. Snyder, J.T., et al. 2002. Structural basis for the selective activation of Rho GTPases by Dbl exchange factors. Nat. Struct. Biol. 9: 468-475.
3. Ogita, H., et al. 2003. EphA4-mediated Rho activation via Vsm-RhoGEF expressed specifically in vascular smooth muscle cells. Circ. Res. 93: 23-31.
4. Online Mendelian Inheritance in Man, OMIM™. 2004. Johns Hopkins University, Baltimore, MD. MIM Number: 608504. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
5. O'Brien, M., et al. 2008. Expression of Rho GTPase regulators in human myometrium. Reprod. Biol. Endocrinol. 6: 1.
6. Shin, E.Y., et al. 2009. Involvement of βPIX in angiotensin II-induced migration of vascular smooth muscle cells. Exp. Mol. Med. 41: 387-396.
7. Wang, Z., et al. 2009. Regulation of immature dendritic cell migration by RhoA guanine nucleotide exchange factor ARHGEF5. J. Biol. Chem. 284: 28599-28606.

CHROMOSOMAL LOCATION

Genetic locus: Arhgef15 (mouse) mapping to 11 B3.

PRODUCT

ARHGEF15 siRNA (m) 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 ARHGEF15 shRNA Plasmid (m): sc-141223-SH and ARHGEF15 shRNA (m) Lentiviral Particles: sc-141223-V as alternate gene silencing products.

For independent verification of ARHGEF15 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-141223A, sc-141223B and sc-141223C.

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

ARHGEF15 siRNA (m) is recommended for the inhibition of ARHGEF15 expression in mouse 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 ARHGEF15 gene expression knockdown using RT-PCR Primer: ARHGEF15 (m)-PR: sc-141223-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.