SANTA CRUZ BIOTECHNOLOGY, INC.

RASGEF1B siRNA (h): sc-88896

BACKGROUND

RASGEF1B (RasGEF domain family, member 1B), also known as GPIG4 (GPI γ-4), is a 473 amino acid protein that contains one N-terminal Ras-GEF domain and one Ras-GEF domain. The RASGEF1B protein is a guanine nucleotide exchange factor (GEF) with specificity for Rap 2 and other Ras family proteins. RASGEF1B is up-regulated in monocytes stimulated with *T. cruzi* GPI-anchored mucins or bacterial lipopolysaccharides (LPS). RASGEF1B is suspected to be related to one of many sequence variants affecting human height. Existing a three alternatively spliced isoforms, the RASGEF1B gene is conserved in canine, bovine, mouse, zebrafish, fruit fly, mosquito and *C. elegans,* and maps to human chromosome 4q21.21. Representing approximately 6% of the human genome, chromosome 4 contains nearly 900 genes. Notably, the Huntingtin gene, which is found to encode an expanded glutamine tract in cases of Huntington's disease, is on chromosome 4. Chromosome 4 contains the largest gene deserts (regions of the genome with no protein encoding genes) and has one of two lowest recombination frequencies of the human chromosomes.

REFERENCES

1. Ferreira, L.R., Abrantes, E.F., Rodrigues, C.V., Caetano, B., Cerqueira, G.C., Salim, A.C., Reis, L.F. and Gazzinelli, R.T. 2002. Identification and characterization of a novel mouse gene encoding a Ras-associated guanine nucleotide exchange factor: expression in macrophages and myocarditis elicited by *Trypanosoma cruzi* parasites. J. Leukoc. Biol. 72: 1215-1227.
2. Hillier, L.W., Graves, T.A., Fulton, R.S., Fulton, L.A., Pepin, K.H., Minx, P., Wagner-McPherson, C., Layman, D., Wylie, K., Sekhon, M., Becker, M.C., Fewell, G.A., Delehaunty, K.D., Miner, T.L., Nash, W.E., Kremitzki, C., et al. 2005. Generation and annotation of the DNA sequences of human chromosomes 2 and 4. Nature 434: 724-731.
3. Cowan, C.M. and Raymond, L.A. 2006. Selective neuronal degeneration in Huntington's disease. Curr. Top. Dev. Biol. 75: 25-71.
4. Stack, E.C., Dedeoglu, A., Smith, K.M., Cormier, K., Kubilus, J.K., Bogdanov, M., Matson, W.R., Yang, L., Jenkins, B.G., Luthi-Carter, R., Kowall, N.W., Hersch, S.M., Beal, M.F. and Ferrante, R.J. 2007. Neuroprotective effects of synaptic modulation in Huntington's disease R6/2 mice. J. Neurosci. 27: 12908-12915.
5. Gudbjartsson, D.F., Walters, G.B., Thorleifsson, G., Stefansson, H., Halldorsson, B.V., Zusmanovich, P., Sulem, P., Thorlacius, S., Gylfason, A., Steinberg, S., Helgadottir, A., Ingason, A., Steinthorsdottir, V., et al. 2008. Many sequence variants affecting diversity of adult human height. Nat. Genet. 40: 609-615.
6. Yaman, E., Gasper, R., Koerner, C., Wittinghofer, A. and Tazebay, U.H. 2009. RASGEF1A and RASGEF1B are guanine nucleotide exchange factors that discriminate between Rap GTP-binding proteins and mediate Rap2-specific nucleotide exchange. FEBS J. 276: 4607-4616.
7. SWISS-PROT/TrEMBL (Q0VAM2). World Wide Web URL: http://www.uniprot.org/uniprot/Q0VAM2

PROTOCOLS

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

CHROMOSOMAL LOCATION

Genetic locus: RASGEF1B (human) mapping to 4q21.21.

PRODUCT

RASGEF1B 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 RASGEF1B shRNA Plasmid (h): sc-88896-SH and RASGEF1B shRNA (h) Lentiviral Particles: sc-88896-V as alternate gene silencing products.

For independent verification of RASGEF1B (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-88896A, sc-88896B and sc-88896C.

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

RASGEF1B siRNA (h) is recommended for the inhibition of RASGEF1B 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 RASGEF1B gene expression knockdown using RT-PCR Primer: RASGEF1B (h)-PR: sc-88896-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.