

RASGEF1A siRNA (h): sc-90732

BACKGROUND

RASGEF1A (RasGEF domain family, member 1A) is a 481 amino acid guanine-nucleotide exchange factor (GEF) for H-Ras, K-Ras, and N-Ras. RASGEF1A may also play a role in cell migration. RASGEF1A is highly expressed in spinal cord and brain and contains one N-terminal Ras-GEF domain and one Ras-GEF domain. The gene that encodes RASGEF1A maps to human chromosome 10q11.21, which contains over 800 genes and 135 million nucleotides, making up nearly 4.5% of the human genome. PTEN is an important tumor suppressor gene located on chromosome 10 and, when defective, causes a genetic predisposition to cancer development known as Cowden syndrome. The chromosome 10 encoded gene ERCC6 is important for DNA repair and is linked to Cockayne syndrome which is characterized by extreme photosensitivity and premature aging. Tetrahydrobiopterin deficiency and a number of syndromes involving defective skull and facial bone fusion are also linked to chromosome 10. As with most trisomies, trisomy 10 is rare and is deleterious.

REFERENCES

1. Hustinx, T.W., et al. 1974. Trisomy for the short arm of chromosome No. 10. Clin. Genet. 6: 408-415.
2. Gentry, W.C., et al. 1975. Cowden disease. Birth Defects Orig. Artic. Ser. 11: 137-141.
3. Burzynski, G.M., et al. 2005. Identifying candidate Hirschsprung disease-associated RET variants. Am. J. Hum. Genet. 76: 850-858.
4. Emison, E.S., et al. 2005. A common sex-dependent mutation in a RET enhancer underlies Hirschsprung disease risk. Nature 434: 857-863.
5. Yaman, E., et al. 2009. RASGEF1A and RASGEF1B are guanine nucleotide exchange factors that discriminate between Rap GTP-binding proteins and mediate Rap 2-specific nucleotide exchange. FEBS J. 276: 4607-4616.

CHROMOSOMAL LOCATION

Genetic locus: RASGEF1A (human) mapping to 10q11.21.

PRODUCT

RASGEF1A 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see RASGEF1A shRNA Plasmid (h): sc-90732-SH and RASGEF1A shRNA (h) Lentiviral Particles: sc-90732-V as alternate gene silencing products.

For independent verification of RASGEF1A (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-90732A, sc-90732B and sc-90732C.

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.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

RASGEF1A siRNA (h) is recommended for the inhibition of RASGEF1A 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 μ M in 66 μ 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor RASGEF1A gene expression knockdown using RT-PCR Primer: RASGEF1A (h)-PR: sc-90732-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.