SANTA CRUZ BIOTECHNOLOGY, INC.

RGL3 siRNA (h): sc-97315

BACKGROUND

RGL3, also known as ral guanine nucleotide dissociation stimulator-like 3, is a 710 amino acid protein that interacts with GTP-bound forms of RIT1, HRAS and MRAS. The RGL3 protein contains an N-terminal Ras-GEF domain, a Ras-associating domain and a Ras-GEF domain. RGL3 is a guanine nucleotide exchange factor (GEF) for Ral-A and a potential effector of GTPase HRas and Ras-related protein M-Ras. RGL3 negatively regulates Elk-1-dependent gene induction downstream of HRas and MEKK1. The RGL3 gene is conserved in canine, mouse, rat, and zebrafish, and maps to human chromosome 19p13.2. Chromosome 19 consists of approximately 63 million bases and makes up over 2% of human genomic DNA. Chromosome 19 includes a variety of genes with diverse function and is recognized for having the greatest gene density of the human chromosomes. It is the genetic home for a number of immuno-globulin superfamily members including the killer cell and leukocyte Ig-like receptors, a number of ICAMs, the CEACAM and PSG families, and Fcα re-ceptors. Key genes for eye color and hair color also map to chromosome 19.

REFERENCES

1. Zhang, Q., et al. 2005. Nesprin-2 is a multi-isomeric protein that binds lamin and emerin at the nuclear envelope and forms a subcellular network in skeletal muscle. J. Cell Sci. 118: 673-687.
2. Zhang, Q., et al. 2007. Nesprin-1 and -2 are involved in the pathogenesis of Emery Dreifuss muscular dystrophy and are critical for nuclear envelope integrity. Hum. Mol. Genet. 16: 2816-2833.
3. Xu, J., et al. 2007. Identification of Rgl3 as a potential binding partner for Rap-family small G-proteins and profilin II. Cell. Signal. 19: 1575-1582.
4. Puckelwartz, M.J., et al. 2009. Disruption of nesprin-1 produces an Emery Dreifuss muscular dystrophy-like phenotype in mice. Hum. Mol. Genet. 18: 607-620.
5. Roux, K.J., et al. 2009. Nesprin 4 is an outer nuclear membrane protein that can induce kinesin-mediated cell polarization. Proc. Natl. Acad. Sci. USA 106: 2194-2199.
6. Lei, K., et al. 2009. SUN1 and SUN2 play critical but partially redundant roles in anchoring nuclei in skeletal muscle cells in mice. Proc. Natl. Acad. Sci. USA 106: 10207-10212.
7. Haque, F., et al. 2010. Mammalian SUN protein interaction networks at the inner nuclear membrane and their role in laminopathy disease processes. J. Biol. Chem. 285: 3487-3498.
8. Puckelwartz, M.J., et al. 2010. Nesprin-1 mutations in human and murine cardiomyopathy. J. Mol. Cell. Cardiol. 48: 600-608.

CHROMOSOMAL LOCATION

Genetic locus: RGL3 (human) mapping to 19p13.2.

PROTOCOLS

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

PRODUCT

RGL3 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 RGL3 shRNA Plasmid (h): sc-97315-SH and RGL3 shRNA (h) Lentiviral Particles: sc-97315-V as alternate gene silencing products.

For independent verification of RGL3 (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-97315A, sc-97315B and sc-97315C.

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

RGL3 siRNA (h) is recommended for the inhibition of RGL3 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 RGL3 gene expression knockdown using RT-PCR Primer: RGL3 (h)-PR: sc-97315-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Ferretti, C., et al. 2012. Human periosteum-derived stem cells for tissue engineering applications: the role of VEGF. Stem Cell Rev. 8: 882-890.

RESEARCH USE

For research use only, not for use in diagnostic procedures.