

Rho T2 siRNA (h): sc-93029

BACKGROUND

The Rho subfamily of Ras-related GTPases controls multiple aspects of cell function, including cytoskeletal rearrangement, nuclear signaling and cell growth. Rho T2 (Ras homolog gene family, member T2), also known as ARHT2, RASL or MIRO-2 (mitochondrial Rho GTPase 2), is a 618 amino acid single-pass type IV membrane protein that functions as a GTPase during mitochondrial trafficking. Existing as two alternatively spliced isoforms, Rho T2 is ubiquitously expressed with highest levels found in pancreas, heart, kidney and skeletal muscle. Rho T2 is thought to influence anterograde transport of mitochondria and associates with Kinesin-binding proteins, such as OIP106 and GRIF-1, to link mitochondria to microtubules. Rho T2 contains two EF-hand domains and two miro domains, and is encoded by a gene that maps to human chromosome 16p13.3.

REFERENCES

1. Daniels, R.J., et al. 2001. Sequence, structure and pathology of the fully annotated terminal 2 Mb of the short arm of human chromosome 16. *Hum. Mol. Genet.* 10: 339-352.
2. Fransson, A., et al. 2003. Atypical Rho GTPases have roles in mitochondrial homeostasis and apoptosis. *J. Biol. Chem.* 278: 6495-6502.
3. Aspenström, P., et al. 2004. Rho GTPases have diverse effects on the organization of the actin filament system. *Biochem. J.* 377: 327-337.
4. Shan, Y., et al. 2004. Cloning and characterization of the mouse Arht2 gene which encodes a putative atypical GTPase. *Cytogenet. Genome Res.* 106: 91-97.

CHROMOSOMAL LOCATION

Genetic locus: RHOT2 (human) mapping to 16p13.3.

PRODUCT

Rho T2 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 Rho T2 shRNA Plasmid (h): sc-93029-SH and Rho T2 shRNA (h) Lentiviral Particles: sc-93029-V as alternate gene silencing products.

For independent verification of Rho T2 (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-93029A, sc-93029B and sc-93029C.

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

Rho T2 siRNA (h) is recommended for the inhibition of Rho T2 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.

GENE EXPRESSION MONITORING

Rho T2 (E-9): sc-518198 is recommended as a control antibody for monitoring of Rho T2 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Rho T2 gene expression knockdown using RT-PCR Primer: Rho T2 (h)-PR: sc-93029-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Caino, M.C., et al. 2016. A neuronal network of mitochondrial dynamics regulates metastasis. *Nat. Commun.* 7: 13730.
2. Agarwal, E., et al. 2019. Myc regulation of a mitochondrial trafficking network mediates tumor cell invasion and metastasis. *Mol. Cell. Biol.* 39: e00109-19.

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.