SANTA CRUZ BIOTECHNOLOGY, INC.

Atlastin-3 siRNA (h): sc-96376

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The Power to Question

BACKGROUND

Atlastin-3, also known as ATL3 (atlastin GTPase 3), is a 541 amino acid multi-pass membrane protein that belongs to the GBP family and the Atlastin subfamily. Atlastin-3 contains GTP-binding motifs in its N-terminal half and two transmembrane domains in its C-terminal half. Encoded by a gene that maps to human chromosome 11q12.3, Atlastin-3 is conserved in canine, bovine, mouse and zebrafish. Expressed in peripheral tissues and localizing to endoplasmic reticulum membrane, Atlastin-3 participates in tethering GTPase membranes during *trans*-homooligomer formation and mediating homotypic fusion of endoplasmic reticulum membranes. Atlastin-3 also plays a role in endoplasmic reticulum tubular network biogenesis. Although Atlastin-3 functions prominently in endoplasmic reticulum morphogenesis, it is not required for anterograde endoplasmic reticulum-to-Golgi trafficking.

REFERENCES

1. Zhu, P.P., et al. 2003. Cellular localization, oligomerization, and membrane association of the hereditary spastic paraplegia 3A (SPG3A) protein atlastin. J. Biol. Chem. 278: 49063-49071.
2. Rismanchi, N., et al. 2008. Atlastin GTPases are required for Golgi apparatus and ER morphogenesis. Hum. Mol. Genet. 17: 1591-1604.
3. Hu, J., et al. 2009. A class of dynamin-like GTPases involved in the generation of the tubular ER network. Cell 138: 549-561.
4. Lee, M., et al. 2009. *Drosophila* Atlastin regulates the stability of muscle microtubules and is required for synapse development. Dev. Biol. 330: 250-262.
5. Lim, S., et al. 2009. Regulation of macrophage inhibitory factor (MIF) by epidermal growth factor receptor (EGFR) in the MCF10AT model of breast cancer progression. J. Proteome Res. 8: 4062-4076.
6. Renvoise, B., et al. 2010. Emerging themes of ER organization in the development and maintenance of axons. Curr. Opin. Neurobiol. 20: 531-537.

CHROMOSOMAL LOCATION

Genetic locus: ATL3 (human) mapping to 11q12.3.

PRODUCT

Atlastin-3 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 Atlastin-3 shRNA Plasmid (h): sc-96376-SH and Atlastin-3 shRNA (h) Lentiviral Particles: sc-96376-V as alternate gene silencing products.

For independent verification of Atlastin-3 (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-96376A, sc-96376B and sc-96376C.

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 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

Atlastin-3 siRNA (h) is recommended for the inhibition of Atlastin-3 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 Atlastin-3 gene expression knockdown using RT-PCR Primer: Atlastin-3 (h)-PR: sc-96376-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. Lee, J.E., et al. 2012. Nongenomic Stat5-dependent effects on Golgi apparatus and endoplasmic reticulum structure and function. Am. J. Physiol., Cell Physiol. 302: C804-C820.

RESEARCH USE

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