SANTA CRUZ BIOTECHNOLOGY, INC.

Atg10 siRNA (h): sc-72576

BACKGROUND

Autophagy, a process that results in the lysosomal-dependent degradation of cytosolic compartments, is carried out by the autophagosome, which is a double-membrane vesicle whose formation is catalyzed by several autophagy-related gene (Atg) proteins. Atg10 (autophagy-related gene 10), also known as PP12616 or APG10L, is a 220 amino acid protein that localizes to the cytoplasm and plays a role in autophagy, specifically functioning as an E2-like enzyme that provides Atg recognition sites during autophagosome synthesis. Atg10 exists as two isoforms which are produced as a result of alternative splicing events. The gene encoding Atg10 maps to human chromosome 5q14.1, which contains 181 million base pairs and comprises nearly 6% of the human genome. Deletion of the p arm of chromosome 5 leads to Cri du chat syndrome, while deletion of the q arm or of chromosome 5 altogether is common in therapy-related acute myelogenous leukemias and myelodysplastic syndrome.

REFERENCES

1. Mizushima, N., et al. 2002. Mouse Apg10 as an Apg12-conjugating enzyme: analysis by the conjugation-mediated yeast two-hybrid method. FEBS Lett. 532: 450-454.
2. Nemoto, T., et al. 2003. The mouse APG10 homologue, an E2-like enzyme for Apg12p conjugation, facilitates MAP-LC3 modification. J. Biol. Chem. 278: 39517-39526.
3. Shao, Y., et al. 2007. Stimulation of ATG12-ATG5 conjugation by ribonucleic acid. Autophagy 3: 10-16.
4. Criollo, A., et al. 2007. Regulation of autophagy by the inositol trisphosphate receptor. Cell Death Differ. 14: 1029-1039.
5. Online Mendelian Inheritance in Man, OMIM™. 2007. Johns Hopkins University, Baltimore, MD. MIM Number: 610800. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
6. Geng, J. and Klionsky, D.J. 2008. The Atg8 and Atg12 ubiquitin-like conjugation systems in macroautophagy. "Protein modifications: beyond the usual suspects" review series. EMBO Rep. 9: 859-864.

CHROMOSOMAL LOCATION

Genetic locus: ATG10 (human) mapping to 5q14.1.

PRODUCT

Atg10 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 Atg10 shRNA Plasmid (h): sc-72576-SH and Atg10 shRNA (h) Lentiviral Particles: sc-72576-V as alternate gene silencing products.

For independent verification of Atg10 (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-72576A, sc-72576B and sc-72576C.

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

Atg10 siRNA (h) is recommended for the inhibition of Atg10 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 Atg10 gene expression knockdown using RT-PCR Primer: Atg10 (h)-PR: sc-72576-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. Ozeki, N., et al. 2016. Gelatin scaffold combined with bone morphogenetic protein-4 induces odontoblast-like cell differentiation involving integrin profile changes, autophagy-related gene 10, and Wnt5 sequentially in human induced pluripotent stem cells. Differentiation 93: 1-14.
2. Zhang, M.Q., et al. 2020. A new transcription factor ATG10S activates IFNL2 transcription by binding at an IRF1 site in HepG2 cells. Autophagy. E-published.

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.