SANTA CRUZ BIOTECHNOLOGY, INC.

# Atg4D siRNA (m): sc-141325

## 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. Atg4D (autophagy-related gene 4D), also known as APG4D or AUTL4, is a 474 amino acid protein that localizes to the cytoplasm and belongs to the C-54 family of cysteine proteases. Expressed predominately in skeletal muscle, but also present in testis, Atg4D functions as a cysteine protease that is required for autophagy and functions to specifically cleave the C-terminal region of target proteins, thereby allowing the target proteins to bind to autophagosomes. The enzymatic activity of Atg4D is inhibited by N-ethylmaleimide, a thiol reactive compound that is capable of modifying cystine residues in proteins and peptides.

## REFERENCES


1. Mariño, G., et al. 2003. Human autophagins, a family of cysteine proteinases potentially implicated in cell degradation by autophagy. J. Biol. Chem. 278: 3671-3678.
2. Online Mendelian Inheritance in Man, OMIM™. 2007. Johns Hopkins University, Baltimore, MD. MIM Number: 611340. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Gajewska, M., et al. 2008. Role of autophagy in mammary gland development. J. Physiol. Pharmacol. 59: 237-249.
4. Periyasamy-Thandavan, S., et al. 2009. Autophagy: molecular machinery, regulation and implications for renal patho-physiology. Am. J. Physiol. Renal Physiol. 297: F244-F256.
5. Dwivedi, M., et al. 2009. Autophagy genes mediate the effect of calcineurin on lifespan in *C. elegans*. Autophagy 5: 604-607.
6. Dwivedi, M., et al. 2009. Autophagy—is it a preferred route for lifespan extension? BMB Rep. 42: 62-71.
7. Young, A.R., et al. 2009. Autophagy mediates the mitotic senescence transition. Genes Dev. 23: 798-803.


## CHROMOSOMAL LOCATION

Genetic locus: Atg4d (mouse) mapping to 9 A3.

## PRODUCT

Atg4D siRNA (m) is a target-specific 19-25 nt siRNA 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 Atg4D shRNA Plasmid (m): sc-141325-SH and Atg4D shRNA (m) Lentiviral Particles: sc-141325-V as alternate gene silencing products.

## 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

Atg4D siRNA (m) is recommended for the inhibition of Atg4D expression in mouse 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 Atg4D gene expression knockdown using RT-PCR Primer: Atg4D (m)-PR: sc-141325-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## RESEARCH USE

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