



Fig. S1. Key autophagy encoding gene is present in the genome of *Abestopluma hypogea*. (A) Amino acid sequences of *A. hypogea* ATG8 isolated clones as deduced from cDNA sequencing and compared with human, *Ciona*, *Drosophila* and nematode ATG8 sequences (Godefroy et al., 2009). Two main clusters (framed) were obtained: AS15547755 and AS15550259, related to the GABARAP family; and AS15544626 and AS15546683, related to the MAPLC3 family. Residues shared by at least 90 and 50% sequences are indicated in red and blue, respectively. A consensus sequence is indicated below each frame. The arrows point out sponge ATG8 clones. (B) Alignment of AS15544626 with human MAPLC3a. The underlined sequence corresponds to the peptide used as antigen to produce the anti-human MAPLC3 antibody used in this study. Residues shared by at least 90% sequences are indicated in red. (C) mRNA expression of *A. hypogea* ATG8.

Table S1. Set of forward and reverse primers designed to amplify the ATG8 gene

Name	Forward primer	Reverse primer	PCR fragment size (bp)
AS15547755	GCA-AAA-ATC-AGG-GCC-AAA-TA	CCA-AAT-GTG-TTC-TCC-CCA-CT	407
For Race PCR	GTCCCCAAGTCCACCATCCCAGATA	CCATGGACGCACTTGTGGGTAG	
AS15550259	CAT-GTG-CTG-CGA-CAG-AGA-AT	TCC-CCA-CTG-TAT-GCC-ATG-TA	152
	CGG-AGT-CTG-CGA-AGA-TAA-GG		289
For Race PCR	TGGTCCCTGGAGACTTGACAGTTGC	GTTGGAGTGACCCCATGACCATGA	
AS15546683	AGG-TGG-GAT-TGT-CGA-GAC-TG	TAT-CCT-GGG-AGG-CGT-ATT-TG	470
	AGA-TGA-GTC-ACC-GGA-TGG-AG		404
For Race PCR	AGCCAGCTCACTGCCATCATCAGAC	GAACGCTCCACGATCACAGGAATCT	
AS15546683	AGC-AAT-CTT-CCG-ACA-ACC-AG	CAG-CCA-AAG-AAC-TCG-TGT-GA	370
For Race PCR	GCAAGGAGCAGGACCTCCCATATT	ATAAAAGGCTTGGGTGTGCGACAGG	