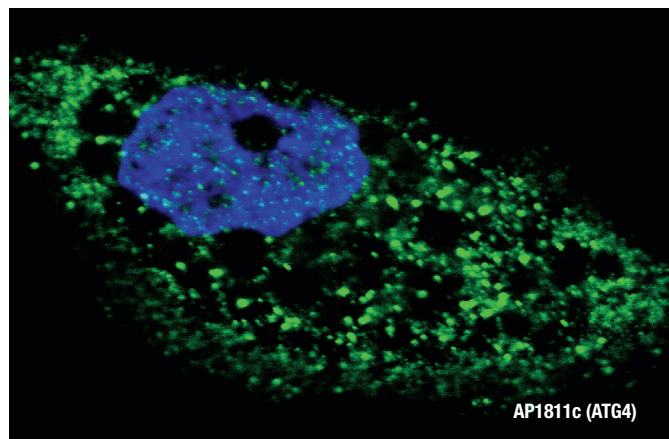
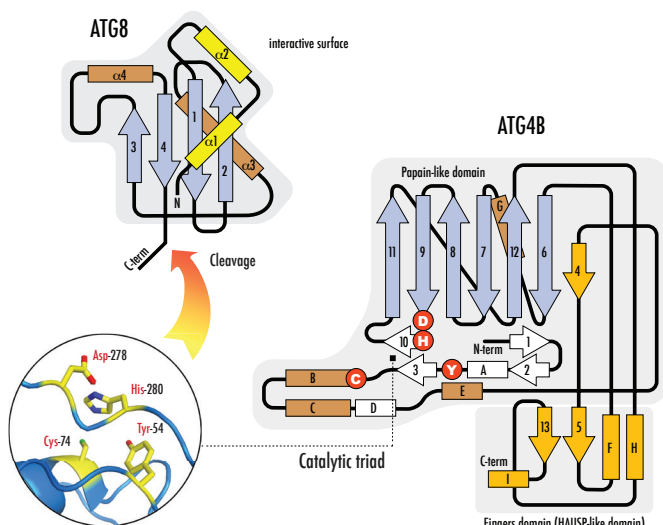


Introduction

The process of autophagic membrane expansion is regulated by a number of different Atg proteins that includes ubiquitin-like (Ubl) proteins, which participate in the two conjugation reactions. Both systems include proteins displaying three different enzymatic activities: ubiquitin-activating enzyme (E1), ubiquitin-conjugating enzyme (E2) and ubiquitin-protein ligase (E3). The first Ubl system essential for autophagy and membrane expansion is responsible for generating an Atg12-Atg5 protein conjugate. A second Ubl system involves the processing and subsequent conjugation of Atg8 (MAP1LC3 or simply LC3) to phosphatidyl-ethanolamine (PE) by sequential action of three Atg proteins: Atg4, Atg7 and Atg3. LC3 is proteolytically processed by the cysteine protease Atg4 (ATG4D or Autophagin-4), forming an intermediate, cytosolically localized LC3-I. A subpopulation of LC3-I is subsequently converted to a smaller form (form II). Form II, with a revealed C-terminal glycine, is considered to be the phosphatidylethanolamine (PE)-conjugated form associates tight to the membrane and promotes formation of the autophagosomes. (ribbon structure and cleavage is shown below)



Fluorescent image of U251 cells stained with ATG4D (C-term) antibody. U251 cells were treated with Chloroquine (50 μ M, 16h), then fixed with 4% PFA (20 min), permeabilized with Triton X-100 (0.2%, 30 min). Cells were then incubated with AP1811c ATG4D (C-term) primary antibody (1:100, 2 h at room temperature). For secondary antibody, Alexa Fluor® 488 conjugated donkey anti-rabbit antibody (green) was used (1:1000, 1h). Nuclei were counterstained with Hoechst 33342 (blue) (10 μ g/ml, 5 min). ATG4D immunoreactivity is localized to autophagic vacuoles in the cytoplasm of U251 cells.

Selected Abgent Products

CAT. #	TARGET NAME
AP1811c	ATG4D Antibody (C-term)
AM1800a	LC3 Antibody (APG8)
AM1818a	Beclin 1 Antibody (Ascites)
AP1802a	LC3 Antibody (APG8B) (N-term)
AP1805a	Cleaved LC3A Antibody
AP1806a	Cleaved LC3B Antibody
AP1809c	ATG4B Antibody (C-term)
AP1812a	ATG5 Antibody (N-term)
AP1812c	APG5 Antibody
AP1813c	ATG7 Antibody
AP1813d	ATG7 Antibody (C-term)
AP1814c	ATG9A Antibody (C-term)
AP1823a	LAMP1 Antibody (N-term)
AP1827a	LAMP3 Antibody (N-term)

Visual categorization

Target associated (orange)



Autophagy Stem Cell Neurodegeneration