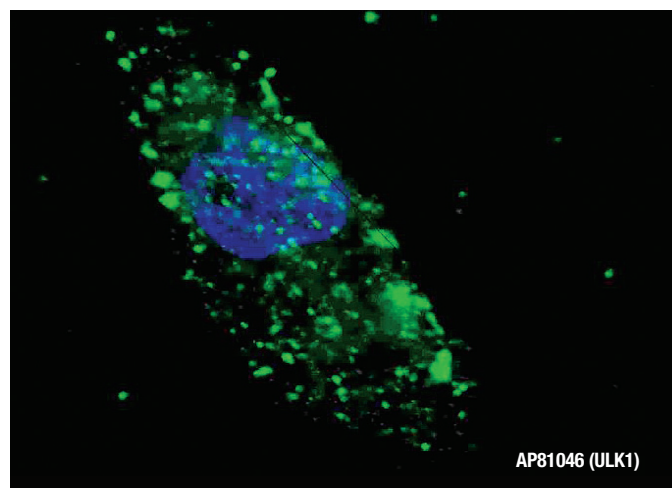


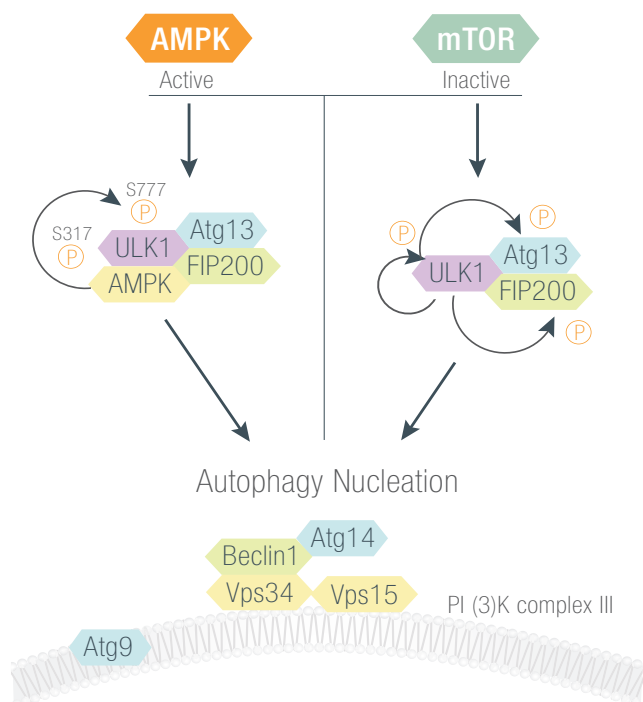
Introduction

The first conserved signaling modules encoded by autophagy genes that control the major steps in the process is the Atg1 complex (Atg1-Atg13-Atg17) in yeast and its mammalian counterpart, the UNC-51 like kinase 1 (ULK1) complex, consisting of ULK1, FIP200, mAtg13 and Atg101. This complex is positively regulated by AMPK, a key energy sensor to low energy and regulator of energy homeostasis. Under nutrient starvation, AMPK promotes autophagy by directly activating ULK1 through phosphorylation of Ser317 and Ser777. Conversely, ULK1 complex is negatively regulated by the mTOR through direct phosphorylation of ULK1 at Ser757. Under nutrient rich conditions, mTOR phosphorylates ULK1 and mAtg13, which inhibits ULK1 kinase activity. During starvation, inactive mTOR allows ULK1 to phosphorylate itself, mAtg13 and FIP200, leading to further recruitment of Atg complexes, such as the class III PI3K complex, to initiate autophagy.



Fluorescent image of U251 cells stained with APG1 (ULK1) (Center) antibody. U251 cells treated with Chloroquine (50 μ M, 16h), were fixed with 4% PFA (20 min), permeabilized with Triton X-100 (0.2%, 30 min) and incubated with AP8104b APG1 (ULK1) (Center) primary antibody (1:100, 2 h at RT). 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). APG1 (ULK1) immunoreactivity is localized to autophagic vacuoles in the cytoplasm of U251 cells.

Nutrient starvation



Selected Abgent Products

CAT. #	TARGET NAME
AP8104b	APG1 (ULK1) Antibody (Center)
AP3804a	ULK1 (Phospho S556)
AP19789c	ATG13 Antibody
AP19251c	ULK2 Antibody (Center S323)
AP6273c	mTOR (FRAP1) Antibody (S2481)
AM1858a	PRKAA1 Antibody
AP8653a	Beclin1-BH3 Domain Antibody
AP1832c	ATG14 Antibody (Center)
AP1851e	PI3KC3 Antibody (S34)
AP6408b	Paxillin (PXN) Antibody (C-term)
AP16601a	SDCBP2 Antibody (N-term)
AP2183b	SQSTM1 (p62) Antibody (C-term)
AP7686f	TRKA Antibody
AM1842a	NGFR Antibody
AP1850b	UVRAG Antibody (C-term)

Visual categorization

Target associated (orange)



Autophagy Stem Cell Neurodegeneration

