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ATG4D Antibody

Mouse Monoclonal Antibody (Mab)
Catalog # AM1896B

Product Information

Application	IF, WB, E
Primary Accession	Q86TL0
Other Accession	NP_116274.3
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Isotype	IgG1,K
Clone Names	222CT15.4.1
Calculated MW	52922

Additional Information

Gene ID	84971
Other Names	Cysteine protease ATG4D, 3422-, AUT-like 4 cysteine endopeptidase, Autophagin-4, Autophagy-related cysteine endopeptidase 4, Autophagy-related protein 4 homolog D, Cysteine protease ATG4D, mitochondrial, ATG4D, APG4D, AUTL4
Target/Specificity	This ATG4D monoclonal antibody is generated from mouse immunized with ATG4D recombinant protein.
Dilution	IF~~1:10~50 WB~~1:4000 E~~Use at an assay dependent concentration.
Format	Purified monoclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein G column, followed by dialysis against PBS.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	ATG4D Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	ATG4D {ECO:0000303|PubMed:19549685, ECO:0000312|HGNC:HGNC:20789}
Function	[Cysteine protease ATG4D]: Cysteine protease that plays a key role in autophagy by mediating both proteolytic activation and delipidation of ATG8

family proteins (PubMed:21177865, PubMed:29458288, PubMed:30661429). The protease activity is required for proteolytic activation of ATG8 family proteins: cleaves the C-terminal amino acid of ATG8 proteins MAP1LC3 and GABARAPL2, to reveal a C-terminal glycine (PubMed:21177865). Exposure of the glycine at the C-terminus is essential for ATG8 proteins conjugation to phosphatidylethanolamine (PE) and insertion to membranes, which is necessary for autophagy (By similarity). In addition to the protease activity, also mediates delipidation of ATG8 family proteins (PubMed:29458288, PubMed:33909989). Catalyzes delipidation of PE-conjugated forms of ATG8 proteins during macroautophagy (PubMed:29458288, PubMed:33909989). Also involved in non-canonical autophagy, a parallel pathway involving conjugation of ATG8 proteins to single membranes at endolysosomal compartments, by catalyzing delipidation of ATG8 proteins conjugated to phosphatidylserine (PS) (PubMed:33909989). ATG4D plays a role in the autophagy-mediated neuronal homeostasis in the central nervous system (By similarity). Compared to other members of the family (ATG4A, ATG4B or ATG4C), constitutes the major protein for the delipidation activity, while it promotes weak proteolytic activation of ATG8 proteins (By similarity). Involved in phagophore growth during mitophagy independently of its protease activity and of ATG8 proteins: acts by regulating ATG9A trafficking to mitochondria and promoting phagophore- endoplasmic reticulum contacts during the lipid transfer phase of mitophagy (PubMed:33773106).

Cellular Location [Cysteine protease ATG4D]: Cytoplasm

Tissue Location Widely expressed in testis.

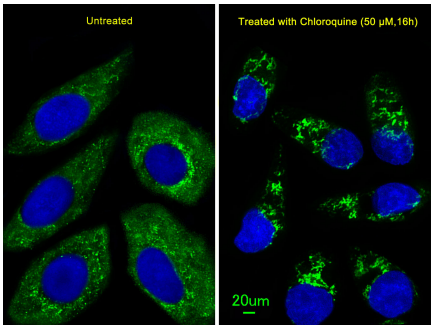
Background

Autophagy is the process by which endogenous proteins and damaged organelles are destroyed intracellularly. Autophagy is postulated to be essential for cell homeostasis and cell remodeling during differentiation, metamorphosis, non-apoptotic cell death, and aging. Reduced levels of autophagy have been described in some malignant tumors, and a role for autophagy in controlling the unregulated cell growth linked to cancer has been proposed. This gene encodes a member of the autophagin protein family. The encoded protein is also designated as a member of the C-54 family of cysteine proteases.

References

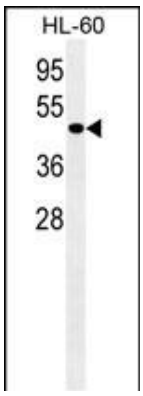
Betin, V.M., et al. J. Cell. Sci. 122 (PT 14), 2554-2566 (2009) :
Lamesch, P., et al. Genomics 89(3):307-315(2007)
Marino, G., et al. J. Biol. Chem. 278(6):3671-3678(2003)

Images

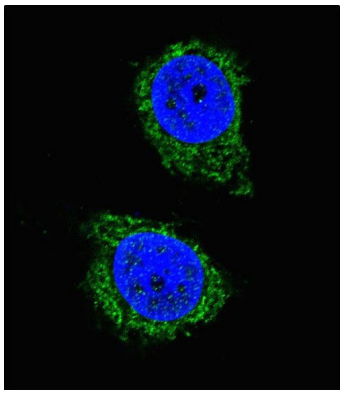


Immunofluorescent analysis of U251 cells, using ATG4D Antibody(Cat. #AM1896b). U251 cells(right) were treated with Chloroquine (50 μM,16h). AM1896b was diluted at 1:25 dilution. Dylight Fluor 488-conjugated goat anti-mouse lgG at 1:400 dilution was used as the secondary antibody (green).DAPI was used to stain the cell nuclear (blue).

ATG4D/MB10250 antibody (Cat. #AM1896b) western blot



analysis in HL-60 cell line lysates (35µg/lane).This demonstrates the ATG4D/MB10250 antibody detected the ATG4D/MB10250 protein (arrow).



Confocal immunofluorescent analysis of ATG4D Antibody (Cat#AM1896b) with Hela cell followed by Alexa Fluor® 488-conjugated goat anti-mouse lgG (green). DAPI was used to stain the cell nuclear (blue).