

ATG4D Antibody (Center)
Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP1811b

Specification

ATG4D Antibody (Center) - Product Information

Application	WB, IHC-P,E
Primary Accession	Q86TL0
Other Accession	Q684M2
Reactivity	Human, Mouse
Predicted	Pig
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Antigen Region	220-249

ATG4D Antibody (Center) - 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 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 220-249 amino acids from the Central region of human ATG4D.

Dilution

WB~~1:1000
IHC-P~~1:50~100

Format

Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation 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 (Center) is for research use only and not for use in diagnostic or therapeutic procedures.

ATG4D Antibody (Center) - 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.

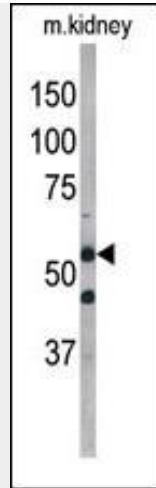
ATG4D Antibody (Center) - Protocols

Provided below are standard protocols that you may find useful for product applications.

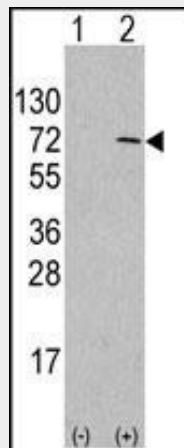
- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

ATG4D Antibody (Center) - Images

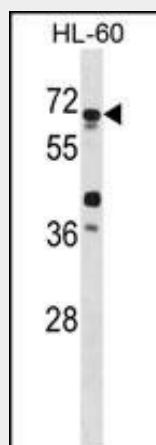




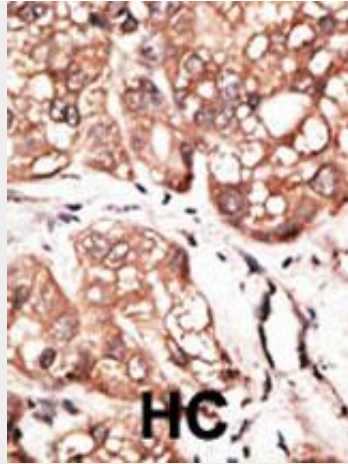
Western blot analysis of anti-APG4D Pab (Cat. #AP1811b) in mouse kidney tissue lysate. APG4D (arrow) was detected using the purified Pab.



Western blot analysis of anti-hAPG4D-L235 Pab (Cat. #AP1811b) in 293 cell line lysates transiently transfected with the APG4D gene (2ug/lane). hAPG4D-L235 (arrow) was detected using the purified Pab.



APG4D Antibody (L235) (Cat. #AP1811b) western blot analysis in HL-60 cell line lysates (35ug/lane). This demonstrates the APG4D antibody detected the APG4D protein (arrow).



Formalin-fixed and paraffin-embedded human cancer tissue reacted with the primary antibody, which was peroxidase-conjugated to the secondary antibody, followed by AEC staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated. BC = breast carcinoma; HC = hepatocarcinoma.

ATG4D Antibody (Center) - Background

Macroautophagy is the major inducible pathway for the general turnover of cytoplasmic constituents in eukaryotic cells, it is also responsible for the degradation of active cytoplasmic enzymes and organelles during nutrient starvation. Macroautophagy involves the formation of double-membrane bound autophagosomes which enclose the cytoplasmic constituent targeted for degradation in a membrane bound structure, which then fuse with the lysosome (or vacuole) releasing a single-membrane bound autophagic bodies which are then degraded within the lysosome (or vacuole). APG4 is a cysteine protease required for autophagy, which cleaves the C-terminal part of either MAP1LC3, GABARAPL2 or GABARAP, allowing the liberation of form I. A subpopulation of form 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, and has the capacity for the binding to autophagosomes.

ATG4D Antibody (Center) - References

Baehrecke EH. *Nat Rev Mol Cell Biol.* 6(6):505-10. (2005) Lum JJ, et al. *Nat Rev Mol Cell Biol.* 6(6):439-48. (2005) Greenberg JT. *Dev Cell.* 8(6):799-801. (2005) Levine B. *Cell.* 120(2):159-62. (2005) Shintani T and Klionsky DJ. *Science.* 306(5698):990-5. (2004)