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ATG4C Antibody (C-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP1810c

Product Information

Application	IHC-P, WB, E
Primary Accession	Q96DT6
Reactivity	Human, Mouse
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	52497
Antigen Region	419-448

Additional Information

Gene ID	84938
Other Names	Cysteine protease ATG4C, 3422-, AUT-like 3 cysteine endopeptidase, Autophagin-3, Autophagy-related cysteine endopeptidase 3, Autophagy-related protein 4 homolog C, ATG4C, APG4C, AUTL1, AUTL3
Target/Specificity	This ATG4C antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 419-448 amino acids from the C-terminal region of human ATG4C.
Dilution	IHC-P~~1:100~500 WB~~1:1000 E~~Use at an assay dependent concentration.
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	ATG4C Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	ATG4C {ECO:0000303|PubMed:21177865, ECO:0000312|HGNC:HGNC:16040}
Function	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). Compared to ATG4B, the major protein for proteolytic activation of ATG8 proteins, shows weaker ability to cleave the C-terminal amino acid of ATG8 proteins, while it displays stronger delipidation activity (PubMed:29458288). In contrast to other members of the family, weakly or not involved in phagophore growth during mitophagy (PubMed:33773106).

Cellular Location Cytoplasm {ECO:0000250|UniProtKB:Q8BGE6}.

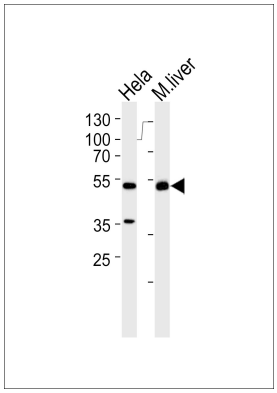
Background

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.

References

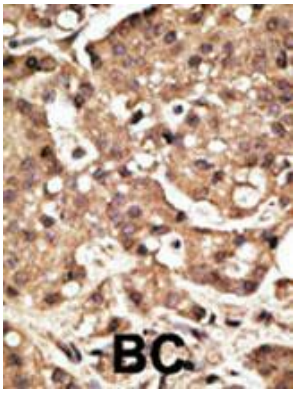
Baehrecke EH. Nat Rev Mol Cell Biol. 6(6):505-10. (2005)
Lum JJ, et al. Nat Rev Mol Cell Biol. 6(6):439-48. (2005)
Greenberg JT. Dev Cell. 8(6):799-801. (2005)
Levine B. Cell. 120(2):159-62. (2005)
Shintani T and Klionsky DJ. Science. 306(5698):990-5. (2004)

Images



Western blot analysis of lysates from Hela cell line and mouse liver tissue lysate(from left to right), using APG4C Antibody (N434)(Cat. #AP1810C). AP1810C was diluted at 1:1000 at each lane. A goat anti-rabbit IgG H&L(HRP) at 1:5000 dilution was used as the secondary antibody. Lysates at 35ug per lane.

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.

Citations

- Temporal orchestration of circadian autophagy rhythm by C/EBP .
- The in vitro cleavage of the hAtg proteins by cell death proteases.