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ATG7 Antibody (C-term)

Purified Rabbit Polyclonal Antibody (Pab)

Catalog # AP1813D

Specification

ATG7 Antibody (C-term) - Product Information

Application	**IF, WB, IHC-P-Leica,E**
Primary Accession	O95352
Other Accession	Q641Y5, Q9D906, Q5ZKY2
Reactivity	**Human, Mouse**
Predicted	**Chicken, Rat**
Host	**Rabbit**
Clonality	**Polyclonal**
Isotype	**Rabbit IgG**
Antigen Region	**540-569**

ATG7 Antibody (C-term) - Additional Information

Gene ID 10533

Other Names
Ubiquitin-like modifier-activating enzyme ATG7, ATG12-activating enzyme E1 ATG7, Autophagy-related protein 7, APG7-like, hAGP7, Ubiquitin-activating enzyme E1-like protein, ATG7, APG7L

Target/Specificity
This ATG7 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 540-569 amino acids from the C-terminal region of human ATG7.

Dilution
IF~~1:25
WB~~1:500
IHC-P-Leica~~1:1000

Format
Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.

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
ATG7 Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures.

ATG7 Antibody (C-term) - Protein Information

Name ATG7 (HGNC:16935)

Synonyms APG7L

Function E1-like activating enzyme involved in the 2 ubiquitin-like systems required for cytoplasm to vacuole transport (Cvt) and autophagy. Activates ATG12 for its conjugation with ATG5 as well as the ATG8 family proteins for their conjugation with phosphatidylethanolamine. Both systems are needed for the ATG8 association to Cvt vesicles and autophagosomes membranes. Required for autophagic death induced by caspase-8 inhibition. Facilitates LC3-I lipidation with phosphatidylethanolamine to form LC3-II which is found on autophagosomal membranes (PubMed:34161705). Required for mitophagy which contributes to regulate mitochondrial quantity and quality by eliminating the mitochondria to a basal level to fulfill cellular energy requirements and preventing excess ROS production. Modulates p53/TP53 activity to regulate cell cycle and survival during metabolic stress. Also plays a key role in the maintenance of axonal homeostasis, the prevention of axonal degeneration, the maintenance of hematopoietic stem cells, the formation of Paneth cell granules, as well as in adipose differentiation. Plays a role in regulating the liver clock and glucose metabolism by mediating the autophagic degradation of CRY1 (clock repressor) in a time-dependent manner (By similarity).

Cellular Location
Cytoplasm. Preautophagosomal structure. Note=Localizes also to discrete punctae along the ciliary axoneme and to the base of the ciliary axoneme

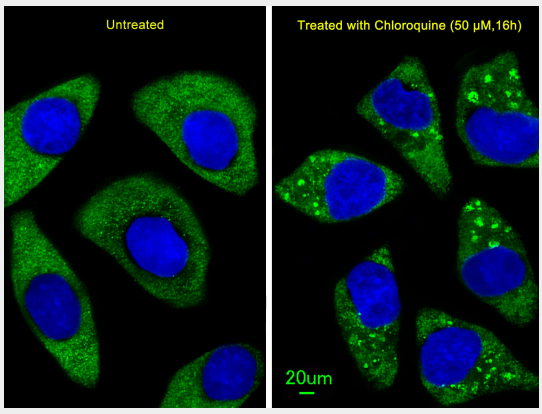
Tissue Location
Widely expressed, especially in kidney, liver, lymph nodes and bone marrow.

ATG7 Antibody (C-term) - Protocols

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

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

ATG7 Antibody (C-term) - Images



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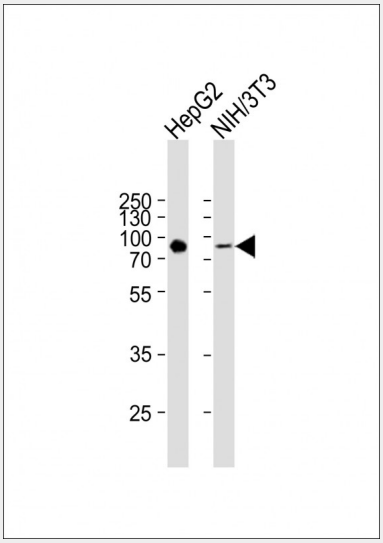
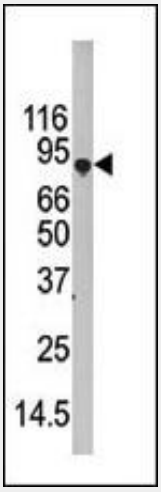
Immunofluorescent analysis of U251 cells, using ATG7 Antibody (C-term) (Cat. #AP1813d). U251 cells(right) were treated with Chloroquine (50 µM,16h). AP1813d was diluted at 1:25 dilution. Alexa Fluor 488-conjugated goat anti-rabbit IgG at 1:400 dilution was used as the secondary antibody (green).DAPI was used to stain the cell nuclear (blue).



All lanes : Anti-ATG7 Antibody (C-term) at 1:1000 dilution Lane 1: HepG2 whole cell lysate Lane 2: NIH/3T3 whole cell lysate Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000 dilution. Predicted band size : 78 kDa Blocking/Dilution buffer: 5% NFDM/TBST.



Western blot analysis of APG7L Pab (Cat. #AP1813d) in 293 cell line lysate (35ug/lane). APG7L (arrow) was detected using the purified Pab.

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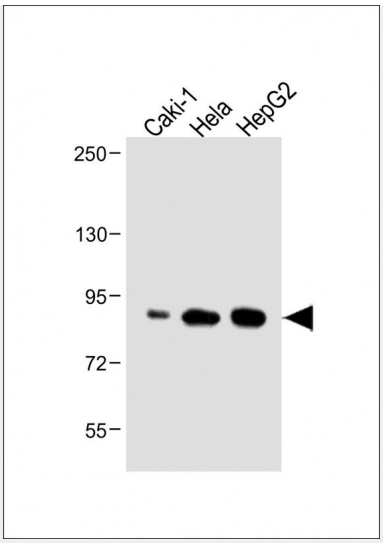
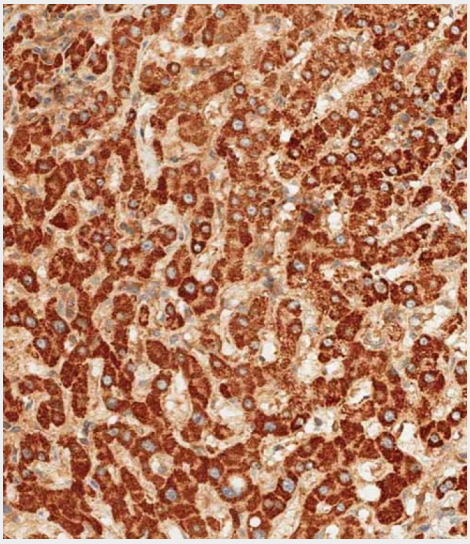


All lanes : Anti-ATG7 Antibody (C-term) at 1:500 dilution Lane 1: Caki-1 whole cell lysate Lane 2: Hela whole cell lysate Lane 3: HepG2 whole cell lysate Lysates/proteins at 40 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000 dilution. Predicted band size : 78 kDa Blocking/Dilution buffer: 5% NFDM/TBST.



Immunohistochemical analysis of paraffin-embedded human liver tissue using AP1813D performed on the Leica® BOND RXm. Tissue was fixed with formaldehyde at room temperature; antigen retrieval was by heat mediation with a EDTA buffer (pH9. 0). Samples were incubated with primary antibody(1:1000) for 1 hours at room temperature. A undiluted biotinylated CRF Anti-Polyvalent HRP Polymer antibody was used as the secondary antibody.

ATG7 Antibody (C-term) - 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).

APG7 functions as an E1 enzyme essential for multisubstrates such as GABARAPL1 and ATG12.

APG3L is an E2-like conjugating enzyme facilitating covalent binding of APG8 (MAP1LC3) to phosphatidylethanolamine (PE). APG7 (an E1-like enzyme) facilitates this reaction by forming an E1-E2 complex with APG3. Formation of the PE conjugate is essential for autophagy.

ATG7 Antibody (C-term) - References

References for protein:
1.Baehrecke EH. Nat Rev Mol Cell Biol. 6(6):505-10. (2005)
2Lum JJ, et al. Nat Rev Mol Cell Biol. 6(6):439-48. (2005)
3.Greenberg JT. Dev Cell. 8(6):799-801. (2005)
4.Levine B. Cell. 120(2):159-62. (2005)
5.Shintani T and Klionsky DJ. Science. 306(5698):990-5. (2004)
6.Tanida I., et al. Biochem. Biophys. Res. Commun. 292:256-262(2002)
7.Tanida I., et al. J. Biol. Chem. 277:13739-13744(2002)
References for U251 cell line:
1. Westermark B.; Pontén J.; Hugosson R. (1973).” Determinants for the establishment of permanent tissue culture lines from human gliomas”. Acta Pathol Microbiol Scand A. 81:791-805. [PMID: 4359449].
2. Pontén, J.,Westermark B. (1978).” Properties of Human Malignant Glioma Cells in Vitro”. Medical Biology 56: 184-193.[PMID: 359950].
3. Geng Y.;Kohli L.; Klocke B.J.; Roth K.A.(2010). “Chloroquine-induced autophagic vacuole accumulation and cell death in glioma cells is p53 independent”. Neuro Oncol. 12(5): 473–481.[PMID: 20406898].

ATG7 Antibody (C-term) - Citations

- Network analysis and mechanisms of action of Chinese herb-related natural compounds in lung cancer cells.
- A C-terminally truncated mouse Best3 splice variant targets and alters the ion balance in lysosome-endosome hybrids and the endoplasmic reticulum.
- Association of autophagy defect with a malignant phenotype and poor prognosis of hepatocellular carcinoma.