10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

Cleaved LC3A Antibody
Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP1805a

Specification

Cleaved LC3A Antibody - Product Information

Application	**IF, WB, IHC-P, ICC,E**
Primary Accession	Q9H492, Q9GZQ8
Other Accession	Q62625, Q9CQV6, Q41515, Q6XVN8, Q91VR7, Q2HJ23, Q6NX90, Q9H492, Q9GZQ8
Reactivity	**Human, Mouse**
Predicted	**Zebrafish, Bovine, Rat**
Host	**Rabbit**
Clonality	**Polyclonal**
Isotype	**Rabbit IgG**
Antigen Region	**89-120**

Cleaved LC3A Antibody - Additional Information

Other Names
Microtubule-associated proteins 1A/1B light chain 3A, Autophagy-related protein LC3 A, Autophagy-related ubiquitin-like modifier LC3 A, MAP1 light chain 3-like protein 1, MAP1A/MAP1B light chain 3 A, MAP1A/MAP1B LC3 A, Microtubule-associated protein 1 light chain 3 alpha, MAP1LC3A

Target/Specificity
This Cleaved LC3A antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 89-120 amino acids from human Cleaved LC3A or LC3B.

Dilution
IF~~1:25
WB~~1:500
IHC-P~~1:25
ICC~~1:10~50

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
Cleaved LC3A Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Cleaved LC3A Antibody - Protein Information

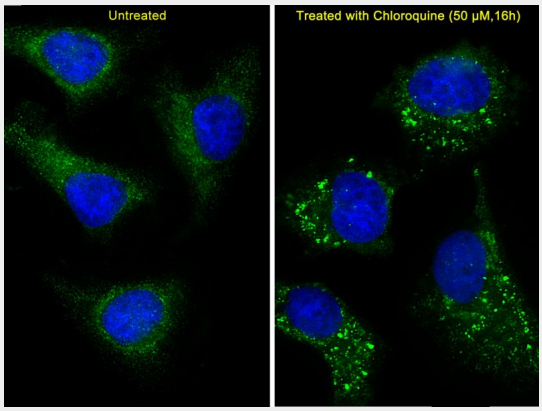
10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

Cleaved LC3A Antibody - Protocols

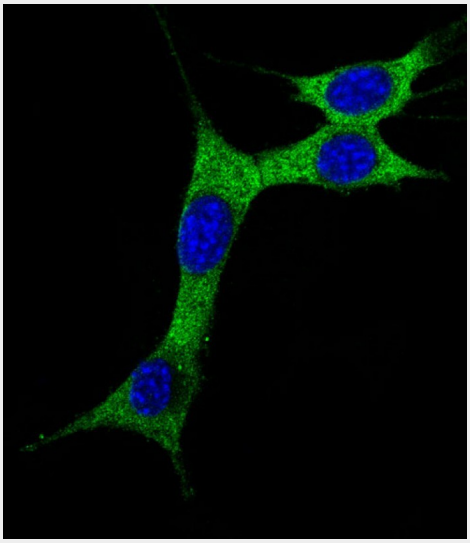
Provided below are standard protocols that you may find useful for product applications.

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

Cleaved LC3A Antibody - Images

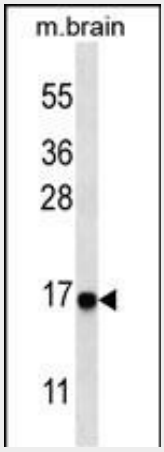


Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized Hela (Human Cervical epithelial adenocarcinoma cell line) cells labeling MAP1LC3A with AP1805A at 1/25 dilution, followed by Alexa Fluor 488-conjugated goat anti-rabbit IgG (1583138) secondary antibody at 1/400 dilution (green). Immunofluorescence image showing vesicles staining on Hela cell line.The nuclear counter stain is DAPI (blue).The right image is Hela cells treated with Chloroquine 50µM for 16h.

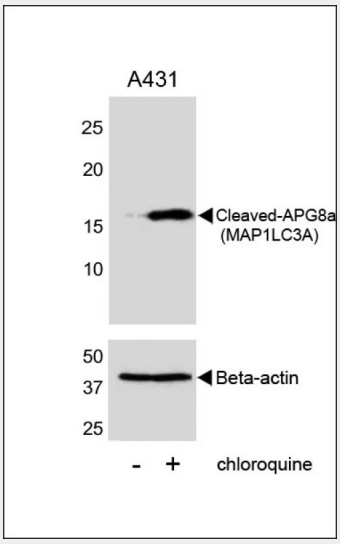


Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized NIH/3T3 (Mouse mouse embryonic fibroblasts cell line) cells labeling MAP1LC3A with AP1805A at

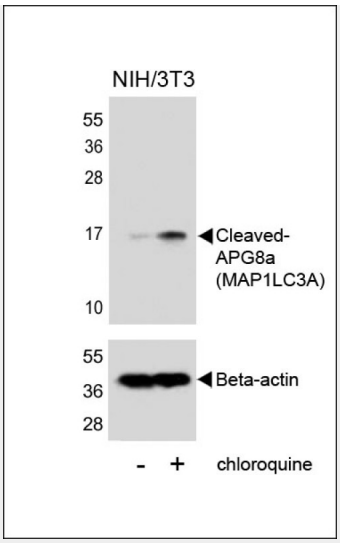
1/25 dilution, followed by Alexa Fluor 488-conjugated goat anti-rabbit IgG (1583138) secondary antibody at 1/400 dilution (green). The nuclear counter stain is DAPI (blue). Immunofluorescence image showing cytoplasm on NIH/3T3 cell line.



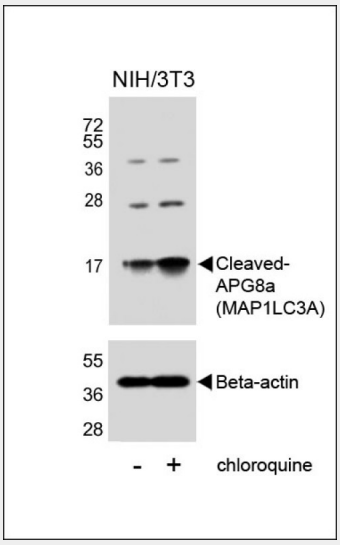
Western blot analysis of anti-cleaved-LC3 (APG8a) Pab (Cat. #AP1805a) in mouse brain tissue lysate. Cleaved-LC3 (APG8a) was detected using the purified Pab.



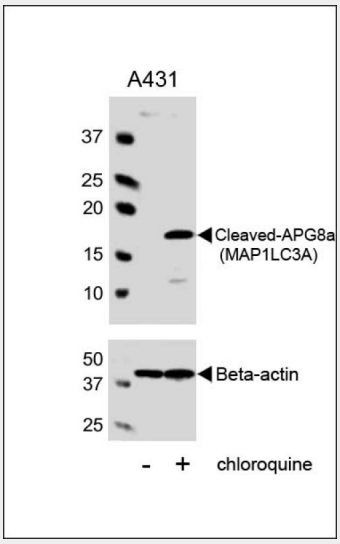
Western blot analysis of lysates from A431 cell line, untreated or treated with chloroquine, 100ng/ml, using Cleaved-APG8a (MAP1LC3A)(Cat. #AP1805a)(upper) or Beta-actin (lower).



Western blot analysis of lysates from NIH/3T3 cells, untreated or treated with chloroquine, using Cleaved-APG8a (MAP1LC3A)(Cat. #AP1805a)(upper) or Beta-actin (lower).

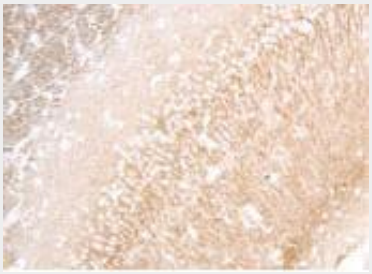


Western blot analysis of lysates from NIH/3T3 cells, untreated or treated with chloroquine, using Cleaved-APG8a (MAP1LC3A)(RB52604)(upper) or Beta-actin (lower).

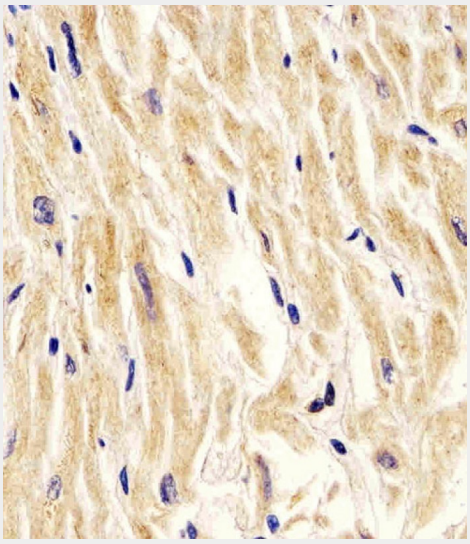


10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

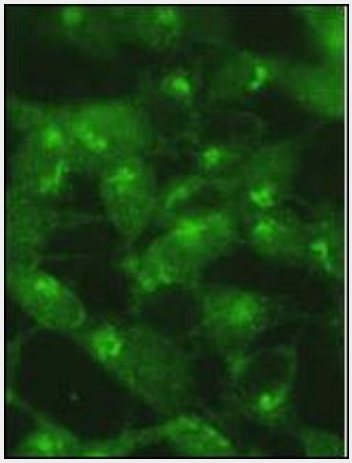
Western blot analysis of lysates from A431 cell line, untreated or treated with chloroquine, 100ng/ml, using Cleaved-APG8a (MAP1LC3A) Antibody (Cat. #AP1805a)(upper) or Beta-actin (lower).



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



AP1805A staining Cleaved-APG8a in Human heart tissue sections by Immunohistochemistry (IHC-P - paraformaldehyde-fixed, paraffin-embedded sections). Tissue was fixed with formaldehyde and blocked with 3% BSA for 0. 5 hour at room temperature; antigen retrieval was by heat mediation with a citrate buffer (pH6). Samples were incubated with primary antibody (1/25) for 1 hours at 37°C. A undiluted biotinylated goat polyvalent antibody was used as the secondary antibody.



5Y cells were pretreated with 5nM bafilomycin for 24hr and fixed in 4% of paraformaldehyde. Treatment with Cat# AP1805a antibody at dilution 1:100. Data courtesy of Jianhui Zhu, MD, PhD & Charleen T. Chu, MD, PhD, University of Pittsburgh School of Medicine.

Cleaved LC3A Antibody - 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). MAP1A and MAP1B are microtubule-associated proteins which mediate the physical interactions between microtubules and components of the cytoskeleton. These proteins are involved in formation of autophagosomal vacuoles (autophagosomes). MAP1A and MAP1B each consist of a heavy chain subunit and multiple light chain subunits. MAP1LC3a is one of the light chain subunits and can associate with either MAP1A or MAP1B. The precursor molecule is cleaved by APG4B/ATG4B to form the cytosolic form, LC3-I. This is activated by APG7L/ATG7, transferred to ATG3 and conjugated to phospholipid to form the membrane-bound form, LC3-II.

Cleaved LC3A Antibody - References

References for protein:
1.Baehrecke EH. Nat Rev Mol Cell Biol. 6(6):505-10. (2005)
2.Lum 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. Int. J. Biochem. Cell Biol. 36:2503-2518(2004)
7.He H., et al. J. Biol. Chem. 278:29278-29287(2003)
8.Tanida I., et al. J. Biol. Chem. 279:36268-36276(2004)
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].

Cleaved LC3A Antibody - Citations

- Capsaicin binds the N-terminus of Hsp90, induces lysosomal degradation of Hsp70, and enhances the anti-tumor effects of 17-AAG (Tanespimycin)
- Lipophagy-ICAM-1 pathway associated with fatty acid and oxygen deficiencies is involved in poor prognoses of ovarian clear cell carcinoma
- Hyperglycemia alters mitochondrial respiration efficiency and mitophagy in human podocytes
- The dynamic interplay between ATP/ADP levels and autophagy sustain neuronal migration in vivo
- Identification of the autophagy pathway in a mollusk bivalve, Crassostrea gigas
- Patterns of LC3A Autophagy Protein Expression in Keratoacanthomas.
- Tumor autophagy is associated with survival outcomes in patients with resected non-small cell lung cancer.
- AR-13 reduces antibiotic-resistant bacterial burden in cystic fibrosis phagocytes and improves cystic fibrosis transmembrane conductance regulator function.

- Three-Dimensional Organoids Reveal Therapy Resistance of Esophageal and Oropharyngeal Squamous Cell Carcinoma Cells.
- Inhibition of excessive autophagy and mitophagy mediates neuroprotective effects of URB597 against chronic cerebral hypoperfusion.
- Defective lysosomal clearance of autophagosomes and its clinical implications in nonalcoholic steatohepatitis.
- Autophagy dysregulation caused by ApoM deficiency plays an important role in liver lipid metabolic disorder.
- Cysteamine-mediated clearance of antibiotic-resistant pathogens in human cystic fibrosis macrophages.
- Three-dimensional tumor cell growth stimulates autophagic flux and recapitulates chemotherapy resistance.
- Standard Immunohistochemical Assays to Assess Autophagy in Mammalian Tissue.
- Vitamin D receptor regulates autophagy in the normal mammary gland and in luminal breast cancer cells.
- Inhibition of autophagy protein LC3A as a therapeutic target in ovarian clear cell carcinomas.
- Transcription Factor EB Expression in Early Breast Cancer Relates to Lysosomal/Autophagosomal Markers and Prognosis.
- ALDH2 modulates autophagy flux to regulate acetaldehyde-mediated toxicity thresholds.
- Increased expression of transcription factor EB (TFEB) is associated with autophagy, migratory phenotype and poor prognosis in non-small cell lung cancer.
- Autophagy levels are elevated in barrett\'s esophagus and promote cell survival from acid and oxidative stress.
- Particulate cytoplasmic structures with high concentration of ubiquitin-proteasome accumulate in myeloid neoplasms.
- Chaperone molecules concentrate together with the ubiquitin-proteasome system inside particulate cytoplasmic structures: possible role in metabolism of misfolded proteins.
- Mineralocorticoid receptor antagonism induces browning of white adipose tissue through impairment of autophagy and prevents adipocyte dysfunction in high-fat-diet-fed mice.
- IFN-γ Stimulates Autophagy-Mediated Clearance of Burkholderia cenocepacia in Human Cystic Fibrosis Macrophages.
- LC3A-positive
- Autophagy proteins in prostate cancer: Relation with anaerobic metabolism and Gleason score.
- Patterns of autophagy in urothelial cell carcinomas--the significance of "stone-like" structures (SLS) in transurethral resection biopsies.
- Autophagy and Bcl-2/BNIP3 death regulatory pathway in non-small cell lung carcinomas.
- A bacterial protein promotes the recognition of the Legionella pneumophila vacuole by autophagy.
- LC3 immunostaining pitfalls.
- Inhibition of the host translation shutoff response by herpes simplex virus 1 triggers nuclear envelope-derived autophagy.
- Overexpression of LC3A autophagy protein in follicular and diffuse large B-cell lymphomas.
- Immunohistochemical analysis of macroautophagy: recommendations and limitations.
- Depletion of the ubiquitin-binding adaptor molecule SQSTM1/p62 from macrophages harboring cftr Î”F508 mutation improves the delivery of Burkholderia cenocepacia to the autophagic machinery.
- Low expression of ULK1 is associated with operable breast cancer progression and is an adverse prognostic marker of survival for patients.
- The gluttonous side of malignant melanoma: basic and clinical implications of macroautophagy.
- "Autophagic flux" in normal mouse tissues: focus on endogenous LC3A processing.
- Autophagy stimulation by rapamycin suppresses lung inflammation and infection by Burkholderia cenocepacia in a model of cystic fibrosis.

10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

- Autophagy patterns and prognosis in uveal melanomas.
- Beclin-1 and LC3A expression in cutaneous malignant melanomas: a biphasic survival pattern for beclin-1.
- LC3A-positive "stone-like" structures in cutaneous squamous cell carcinomas.
- Pancreatic cancers require autophagy for tumor growth.
- Lung autophagic response following exposure of mice to whole body irradiation, with and without amifostine.
- Autophagy in endometrial carcinomas and prognostic relevance of 'stone-like' structures (SLS): what is destined for the atypical endometrial hyperplasia?
- Prognostic relevance of light chain 3 (LC3A) autophagy patterns in colorectal adenocarcinomas.
- LC3A-positive light microscopy detected patterns of autophagy and prognosis in operable breast carcinomas.