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LC3 Antibody (APG8A)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP1800a

Product Information

Application	IF, WB, E
Primary Accession	Q9H492, Q9GZQ8
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	14272

Additional Information

Gene ID	84557
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 LC3 antibody is generated from rabbits immunized with full-length recombinant human LC3 (APG8a).
Dilution	IF~~1:200 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	LC3 Antibody (APG8A) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	MAP1LC3A
Function	Ubiquitin-like modifier involved in formation of autophagosomal vacuoles (autophagosomes) (PubMed:20713600, PubMed:24290141). While LC3s are involved in elongation of the phagophore membrane, the GABARAP/GATE-16 subfamily is essential for a later stage in autophagosome maturation (PubMed:20713600). Through its interaction with the reticulophagy receptor TEX264, participates in the remodeling of subdomains of the endoplasmic

	reticulum into autophagosomes upon nutrient stress, which then fuse with lysosomes for endoplasmic reticulum turnover (PubMed:31006537, PubMed:31006538).
Cellular Location	Cytoplasmic vesicle, autophagosome membrane; Lipid-anchor. Endomembrane system; Lipid-anchor. Cytoplasm, cytoskeleton {ECO:0000250|UniProtKB:Q91VR7}. Note=LC3-II binds to the autophagic membranes.
Tissue Location	Most abundant in heart, brain, liver, skeletal muscle and testis but absent in thymus and peripheral blood leukocytes

Background

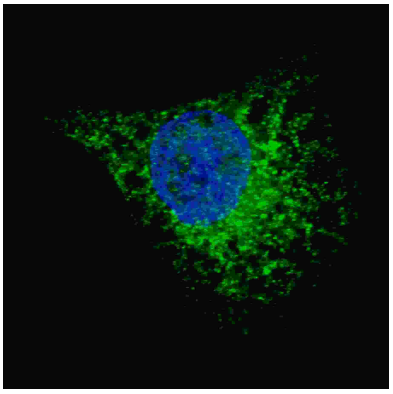
Macroautophagy is the major inducible pathway for the general turnover of cytoplasmic constituents in eukaryotic cells, it is also responsible for the degradation of active cytoplasmic enzymes and organelles during nutrient starvation. Macroautophagy involves the formation of double-membrane bound autophagosomes 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.

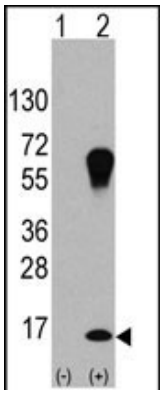
References

References for protein:
1.Tanida, I., et al., J. Biol. Chem. 279(35):36268-36276 (2004).
2. He, H., et al., J. Biol. Chem. 278(31):29278-29287 (2003).
3. Mann, S.S., et al., J. Neurosci. Res. 43(5):535-544 (1996).
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].

Images

Fluorescent image of U251 cells stained with AP1800a LC3 (APG8A) antibody.U251 cells were treated with Chloroquine (50 µM,16h), then fixed with 4% PFA (20 min), permeabilized with Triton X-100 (0.2%, 30 min). Cells were then incubated with AP1800a LC3 (APG8A) primary antibody (1:200, 2 h at room temperature). For secondary antibody, Alexa Fluor® 488 conjugated donkey anti-rabbit antibody (green) was used (1:1000, 1h). Nuclei were counterstained with Hoechst 33342 (blue) (10 µg/ml, 5 min). LC3 immunoreactivity is localized to autophagic vacuoles in the cytoplasm of U251 cells.





Western blot analysis of LC3 (APG8a) (arrow) using purified Pab (Cat.#AP1800a). 293 cell lysates (2 ug/lane) either nontransfected (Lane 1) or transiently transfected with the LC3 (APG8a) gene (Lane 2) (Origene Technologies).

Citations

- Autophagy and Mitochondrial Dysfunction in Tenon Fibroblasts from Exfoliation Glaucoma Patients.
- A novel histone deacetylase inhibitor TMU-35435 enhances etoposide cytotoxicity through the proteasomal degradation of DNA-PKcs in triple-negative breast cancer.
- Thrombin preferentially induces autophagy in glia cells in the rat central nervous system.
- The effect of RNAi silencing of p62 using an osmotic polysorbitol transporter on autophagy and tumorigenesis in lungs of K-ras(LA1) mice.
- RNA interference-mediated downregulation of Beclin1 attenuates cerebral ischemic injury in rats.
- Inhibition of histone deacetylase causes emphysema.
- Aborted autophagy and nonapoptotic death induced by farnesyl transferase inhibitor and lovastatin.
- Induction of autophagy is essential for monocyte-macrophage differentiation.
- Involvement of melatonin in autophagy-mediated mouse hepatoma H22 cell survival.

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