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APG8a/b(MAP1LC3A/B) Antibody

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP10648a

Product Information

Application	IF, WB, IHC-P, E
Primary Accession	Q9GZQ8
Other Accession	O41515, NP_073729.1
Reactivity	Human, Mouse
Predicted	Bovine
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB28610
Calculated MW	14688
Antigen Region	100-125

Additional Information

Gene ID	81631
Other Names	Microtubule-associated proteins 1A/1B light chain 3B, Autophagy-related protein LC3 B, Autophagy-related ubiquitin-like modifier LC3 B, MAP1 light chain 3-like protein 2, MAP1A/MAP1B light chain 3 B, MAP1A/MAP1B LC3 B, Microtubule-associated protein 1 light chain 3 beta, MAP1LC3B, MAP1ALC3
Target/Specificity	This Cleaved-APG8a/b antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 100-125 amino acids from human Cleaved-APG8a/b.
Dilution	IF~~1:100 WB~~1:1000 IHC-P~~1:100~500 E~~Use at an assay dependent concentration.
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	APG8a/b(MAP1LC3A/B) Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	MAP1LC3B (HGNC:13352)

Synonyms	MAP1ALC3
Function	Ubiquitin-like modifier involved in formation of autophagosomal vacuoles (autophagosomes) (PubMed:20418806, PubMed:23209295, PubMed:28017329). Plays a role in 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 (PubMed:23209295, PubMed:28017329). In response to cellular stress and upon mitochondria fission, binds C-18 ceramides and anchors autophagolysosomes to outer mitochondrial membranes to eliminate damaged mitochondria (PubMed:22922758). 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:20418806, PubMed:23209295, PubMed:28017329). Promotes primary ciliogenesis by removing OFD1 from centriolar satellites via the autophagic pathway (PubMed:24089205). 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). Upon nutrient stress, directly recruits cofactor JMY to the phagophore membrane surfaces and promotes JMY's actin nucleation activity and autophagosome biogenesis during autophagy (PubMed:30420355).
Cellular Location	Cytoplasmic vesicle, autophagosome membrane; Lipid-anchor Endomembrane system; Lipid-anchor Mitochondrion membrane; Lipid-anchor. Cytoplasm, cytoskeleton {ECO:0000250|UniProtKB:Q9CQV6}. Cytoplasmic vesicle. Note=LC3-II binds to the autophagic membranes. LC3-II localizes with the mitochondrial inner membrane during Parkin-mediated mitophagy (PubMed:28017329). Also localizes to discrete punctae along the ciliary axoneme
Tissue Location	Most abundant in heart, brain, skeletal muscle and testis. Little expression observed in liver

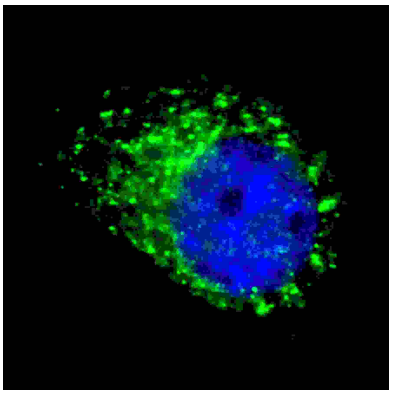
Background

The product of this gene is a subunit of neuronal microtubule-associated MAP1A and MAP1B proteins, which are involved in microtubule assembly and important for neurogenesis. Studies on the rat homolog implicate a role for this gene in autophagy, a process that involves the bulk degradation of cytoplasmic component.

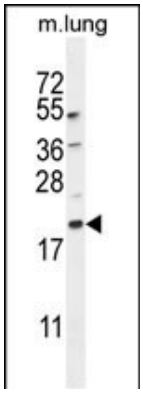
References

References for protein
1.Rouschop, K.M., et al. J. Clin. Invest. 120(1):127-141(2010)
2.Kirkin, V., et al. Mol. Cell 33(4):505-516(2009)
3.Othman, E.Q., et al. J. Clin. Lab. Anal. 23(4):249-258(2009)
4.Liu, Q., et al. Ai Zheng 27(1):25-29(2008)
5.Komatsu, M., et al. Cell 131(6):1149-1163(2007)
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].

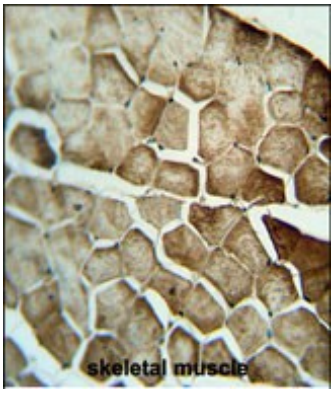
Images



Fluorescent image of U251 cells stained with APG8a/b (MAP1LC3A/B) 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 AP10648a APG8a/b (MAP1LC3A/B) primary antibody (1:100, 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). APG8a/b (MAP1LC3A/B) immunoreactivity is localized to autophagic vacuoles in the cytoplasm of U251 cells.



APG8a/b (MAP1LC3A/B) (Cat. #AP10648a) western blot analysis in mouse lung tissue lysates (35ug/lane).This demonstrates the MAP1LC3A antibody detected the MAP1LC3A protein (arrow).



Cleaved-APG8a/b antibody (MAP1LC3A/B) (Cat. #AP10648a) immunohistochemistry analysis in formalin fixed and paraffin embedded human skeletal muscle followed by peroxidase conjugation of the secondary antibody and DAB staining. This data demonstrates the use of the Cleaved-APG8a/b antibody (MAP1LC3A/B) for immunohistochemistry. Clinical relevance has not been evaluated.