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Phospho-LC3C(S12) Antibody

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP3301a

Product Information

Application	WB, DB, E
Primary Accession	Q9H492
Other Accession	Q6XVN8, Q91VR7, Q2HJ23
Reactivity	Human
Predicted	Bovine, Mouse, Rat
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 LC3C Antibody is generated from rabbits immunized with a KLH conjugated synthetic phosphopeptide corresponding to amino acid residues surrounding S12 of human LC3C.
Dilution	WB~~1:1000 DB~~1:500 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	Phospho-LC3C(S12) Antibody 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

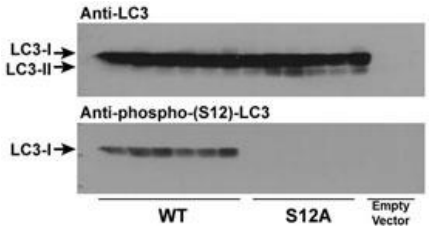
Background

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. 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).

References

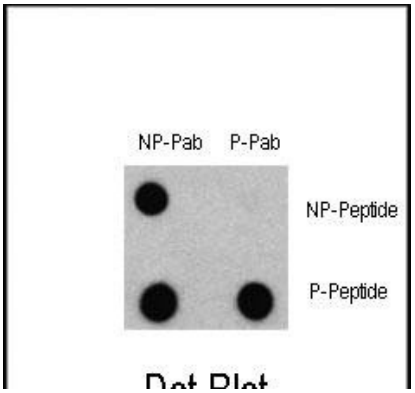
Baehrecke EH. Nat Rev Mol Cell Biol. 6(6):505-10. (2005) Lum JJ, et al. Nat Rev Mol Cell Biol. 6(6):439-48. (2005) Greenberg JT. Dev Cell. 8(6):799-801. (2005) Levine B. Cell. 120(2):159-62. (2005) Shintani T and Klionsky DJ. Science. 306(5698):990-5. (2004) Tanida I., et al. Int. J. Biochem. Cell Biol. 36:2503-2518(2004) He H., et al. J. Biol. Chem. 278:29278-29287(2003) Tanida I., et al. J. Biol. Chem. 279:36268-36276(2004)

Images

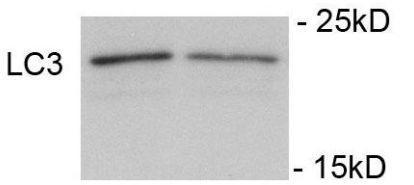


Immunoblots of phosphorylated LC3 (phospho-LC3) in CHO cell culture. LC3 and LC3 S12A mutant vectors were transfected into CHO cells. The cell lysates were separated with SDS-PAGE and blotted with anti-phospho-LC3 S12 antibody. LC3 = microtubule-associated protein light chain-3; S12A = replacement of the amino acid position 12 serine of LC3 with alanine. WT = wildtype LC3-transfected cell lysates; S12A = LC3 S12A mutant-transfected cell lysates; Empty vector = vector with no LC3 gene. Molecular size: LC3-I = 16kDa, and LC3-II = 14 kDa

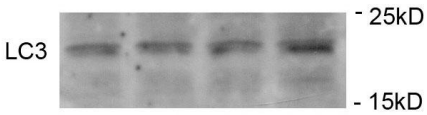
Dot blot analysis of Phospho-LC3 (APG8a) - S12 Antibody (Cat. #AP3301a) and Nonphospho-LC3 (APG8a) Antibody on nitrocellulose membrane. 50ng of Phospho-peptide or Non Phospho-peptide per dot were adsorbed. Antibody



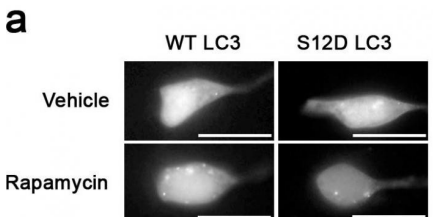
working concentrations are 0.5ug per ml.



Immunoblots of SH-SY5Y cells treated with rapamycin for 1 h was probed with AP3301a. The data shows that treatment with rapamycin showed no significant change in level of LC3.



Immunoblots of SH-SY5Y cells treated with MPP+ for 24h was probed with AP3301a. The data shows that treatment with MPP+ showed no significant change in level of LC3.



Something like SH-SY5Y cells expressing GFP-LC3-WT or-S12D treated with rapamycin or vehicle for 1h.

Citations

- PKCλ/ι Loss Induces Autophagy, Oxidative Phosphorylation, and NRF2 to Promote Liver Cancer Progression
- Assessment of Posttranslational Modifications of ATG proteins.
- The endothelial adrenomedullin-RAMP2 system regulates vascular integrity and suppresses tumour metastasis.
- Identification of a small molecule targeting annexin A7.
- MAPK15/ERK8 stimulates autophagy by interacting with LC3 and GABARAP proteins.
- Rab5 and class III phosphoinositide 3-kinase Vps34 are involved in hepatitis C virus NS4B-induced autophagy.
- Regulation of the autophagy protein LC3 by phosphorylation.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.