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LC3 Antibody (APG8)

Purified Mouse Monoclonal Antibody (Mab)
Catalog # AM1800A

Product Information

Application	WB, E
Primary Accession	Q9H492, Q9GZQ8
Reactivity	Human, Mouse, Rat
Host	Mouse
Clonality	Monoclonal
Isotype	Mouse IgG1 k
Clone Names	166AT1234
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 mouse immunized with a full length recombinant protein of human LC3 (APG8).
Dilution	WB~~1:2000 E~~Use at an assay dependent concentration.
Format	Purified monoclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein G column, 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 (APG8) 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

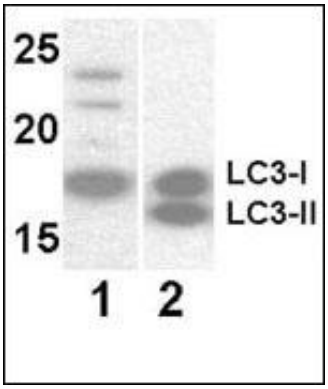
MAP1A and MAP1B are microtubule-associated proteins which mediate the physical interactions between microtubules and components of the cytoskeleton. MAP1A and MAP1B each consist of a heavy chain subunit and multiple light chain subunits. The protein encoded by this gene is one of the light chain subunits and can associate with either MAP1A or MAP1B. Two transcript variants encoding different isoforms have been found for this gene.

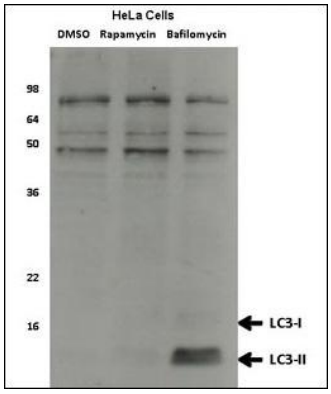
References

References for protein:
1.Autophagy negatively regulates Wnt signalling by promoting Dishevelled degradation. Gao C, et al. Nat Cell Biol, 2010 Aug. PMID 20639871.
2.The prolyl isomerase Pin1 induces LC-3 expression and mediates tamoxifen resistance in breast cancer. Namgoong GM, et al. J Biol Chem, 2010 Jul 30. PMID 20479004.
3.Protein kinase C inhibits autophagy and phosphorylates LC3. Jiang H, et al. Biochem Biophys Res Commun, 2010 May 14. PMID 20398630.
4. Processing of autophagic protein LC3 by the 20S proteasome. Gao Z, et al. Autophagy, 2010 Jan. PMID 20061800.
5.Defective autophagy associated with LC3 puncta in epothilone-resistant cancer cells. Shen S, et al. Cell Cycle, 2010 Jan 15. PMID 20023420.
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

Western blot analysis of anti-LC3 Mab (Cat. #AM1800a) at 8 µg/ml. Lane 1: Y79 (soluble fraction of cell extract); Lane 2: 293 transfected with human LC3 (whole cell extract).





Western blot analysis of anti-LC3 Mab (Cat. #AM1800a) Hela cell lysates, which were treated with rapamycin or bafilomycin overnight. Data courtesy of Dr. David Rubinsztein, Cambridge Institute for Medical Research.

Citations

- Clinical and histological features of immune-mediated necrotising myopathy: A multi-centre South Australian cohort study
- Aberrant Expression of High Mobility Group Box Protein 1 in the Idiopathic Inflammatory Myopathies
- Mouse knock-out of IOP1 protein reveals its essential role in mammalian cytosolic iron-sulfur protein biogenesis.
- Production of interferon α by human immunodeficiency virus type 1 in human plasmacytoid dendritic cells is dependent on induction of autophagy.
- Atorvastatin induces autophagic cell death in prostate cancer cells in vitro.
- CD40 ligand exhibits a direct antiviral effect on Herpes Simplex Virus type-1 infection via a PI3K-dependent, autophagy-independent mechanism.
- GMI, an immunomodulatory protein from Ganoderma microsporum, potentiates cisplatin-induced apoptosis via autophagy in lung cancer cells.
- Male meiotic cytokinesis requires ceramide synthase 3-dependent sphingolipids with unique membrane anchors.
- Beclin 1 knockdown inhibits autophagic activation and prevents the secondary neurodegenerative damage in the ipsilateral thalamus following focal cerebral infarction.
- Immunohistochemical study of the autophagy marker microtubule-associated protein 1 light chain 3 in normal and steatotic human livers.
- Fatty Acid Oxidation Compensates for Lipopolysaccharide-Induced Warburg Effect in Glucose-Deprived Monocytes.
- Cross-talk between lipid and protein carbonylation in a dynamic cardiomyocyte model of mild nitroxidative stress.
- Tamoxifen Induces Cytotoxic Autophagy in Glioblastoma.
- Lapatinib induces autophagic cell death and differentiation in acute myeloblastic leukemia.
- Induction of autophagy is essential for monocyte-macrophage differentiation.
- The effect of RNAi silencing of p62 using an osmotic polysorbitol transporter on autophagy and tumorigenesis in lungs of K-ras(LA1) mice.
- The Rac1/MKK7/JNK pathway signals upregulation of Atg5 and subsequent autophagic cell death in response to oncogenic Ras.
- Characterization of Puma-dependent and Puma-independent neuronal cell death pathways following prolonged proteasomal inhibition.
- The unfolded protein response protects human tumor cells during hypoxia through regulation of the autophagy genes MAP1LC3B and ATG5.
- Time-resolved proteomic profiling reveals compositional and functional transitions across the stress granule life cycle

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