abcam

ab51520

Anti-LC3B antibody

Anti-LC3B antibody (ab51520) is a rabbit polyclonal antibody detecting LC3B in **Western Blot, Flow Cytometry (Intra), IHC-Fr, ICC/IF**. Suitable for **Human**.

- Over 440 publications
- Trusted since 2007

Lab Essentials

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.4 Preservative: 0.02% Sodium azide Constituents: PBS, 1% BSA
Form	Liquid
Clonality	Polyclonal
Immunogen	Synthetic Peptide within Human MAP1LC3B. The exact immunogen used to generate this antibody is proprietary information. Database link Q9GZQ8
Purification technique	Affinity purification Immunogen
Specificity	ab51520 is specific for the B isoform of LC3.
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Human
Dilution info	1/3000
Notes	Detects bands of ~16 kDa (LC3-II) and ~18 kDa (LC3-I).

ICC/IF

Tested

Species	Human
Dilution info	1/2000
Notes	-

IHC-Fr

Tested

Species	Human
Dilution info	1/2000
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/200
Notes	-

Target data

See full target information MAP1LC3B

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).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

Anti-LC3B antibody (ab51520) is a rabbit polyclonal antibody and is validated for use in Flow Cyt (Intra), ICC/IF, IHC-Fr, WB in human samples.

Anti-LC3B antibody (ab51520) has been cited over 448 times in peer reviewed journals and is trusted by the scientific community.

Abcam's high quality validation processes ensure Anti-LC3B antibody (ab51520) has high sensitivity and specificity.

Anti-LC3B antibody (ab51520) has 18 independent reviews from customers.

Anti-LC3B antibody (anti-MAP1LC3B antibody) (ab51520) specifically detects LC3B (UniProt ID: Q9GZQ8; Molecular weight: 14kDa) and is sold in 100 µL selling sizes.

LC3B (MAP1LC3B) or Microtubule-associated protein 1 light chain 3 beta is a key marker of autophagy, a process that cancer cells often exploit for survival and growth. Elevated LC3B expression is commonly observed in various solid tumors and is associated with increased tumor proliferation and metastasis. LC3B facilitates the formation of autophagosomes, which help cancer cells manage stress and maintain cellular homeostasis.

ab51520 has been shown to work on human malignant brain tumors, breast cancer, leukemia samples, and murine cells.

The product formulation changed to include 1% BSA on 17th May 2017. The following lot does not contain BSA and is still in stock GR320876. All future lots will contain 1% BSA.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	LC3B also known as microtubule-associated protein 1 light chain 3 beta plays an important role in autophagy a process that maintains cellular homeostasis. The LC3B protein with a molecular weight of approximately 14 kDa undergoes lipidation to form LC3-II which associates with autophagosomal membranes. This protein expresses ubiquitously in various tissues including liver muscle and brain. Researchers often detect LC3B using techniques like LC3B western blot and LC3B immunofluorescence due to its function as a marker indicating autophagy levels.
Biological function summary	LC3B contributes significantly to the formation and maturation of autophagosomes. LC3B part of the autophagy-related protein complex binds to autophagic membranes. During this process LC3-I converts to LC3-II a lipid-phosphatidylethanolamine conjugate essential for autophagosome membrane expansion and closure. This mechanism helps remove damaged organelles and misfolded proteins from cells therefore contributing to cellular quality control.
Pathways	LC3B integrates into the autophagy pathway which is critical for cellular adaptive responses to stress. The mammalian target of rapamycin (mTOR) pathway regulates autophagy where mTOR inhibition activates LC3B promoting autophagosome formation. Moreover LC3B operates alongside other proteins like Beclin-1 and ULK1 facilitating the initiation and progression of autophagy under nutrient starvation conditions. These interactions highlight LC3's role in cellular energy balance and survival mechanisms.
Associated diseases and disorders	LC3B connects with conditions such as cancer and neurodegenerative diseases. Altered autophagy levels mediated by LC3B often associate with tumorigenesis where its dysregulation can affect cancer progression. Furthermore LC3B also links to neurodegenerative diseases like Alzheimer's where impaired autophagy disrupts neuronal function. LC3B interacts with proteins such as p62/SQSTM1 which affects protein aggregate clearance a critical factor in neurodegenerative pathology.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

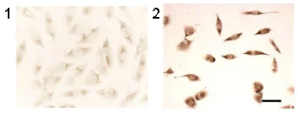
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

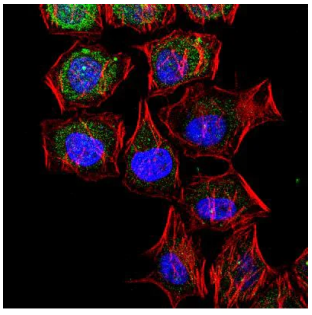
9 product images



Immunohistochemistry (Frozen sections) - Anti-LC3B antibody (ab51520)

LC3B Immunohistochemistry (Frozen sections) staining using rabbit Anti-LC3B antibody

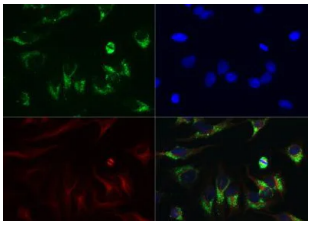
ab51520 at 1/2000 dilution staining treated U373-MG (human glioblastoma) cells
1) Control
2) Temozolomide



Immunocytochemistry/ Immunofluorescence - Anti-LC3B antibody (ab51520)

LC3B Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-LC3B antibody

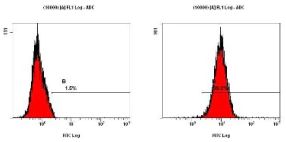
Immunocytochemistry/Immunofluorescence analysis of HeLa cells labelling LC3B with ab51520.An Alexa Fluor 488-conjugated Goat to rabbit IgG was used as secondary antibody (green). Actin filaments were labeled with Alexa Fluor 568 phalloidin (red). DAPI was used to stain the cell nuclei (blue).



Immunocytochemistry/ Immunofluorescence - Anti-LC3B antibody (ab51520)

LC3B Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-LC3B antibody

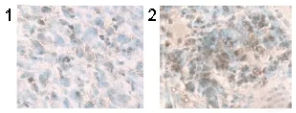
Immunocytochemistry/Immunofluorescence analysis of HeLa cells using anti-LC3B antibody(red) at 0.1 ug/ml. Nuclei were counterstained with DAPI (blue).Nuclei and alpha-tubulin were counterstained with DAPI (blue) and Dylight 550 (red).



Flow Cytometry (Intracellular) - Anti-LC3B antibody (ab51520)

LC3B Flow Cytometry (Intracellular) staining using rabbit Anti-LC3B antibody

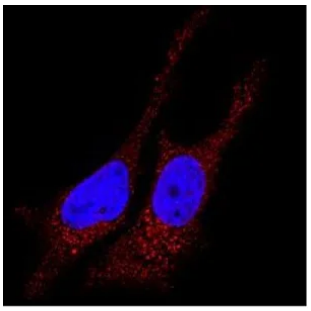
Flow cytometry (Intracellular) analysis of NTERA-2 cells with ab51520 at 1/200 using Dylight-488 conjugated goat anti-rabbit IgG secondary.



Immunohistochemistry (Frozen sections) - Anti-LC3B antibody (ab51520)

LC3B Immunohistochemistry (Frozen sections) staining using rabbit Anti-LC3B antibody

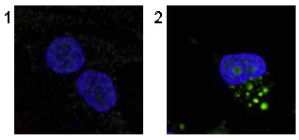
ab51520 at 1/2000 dilution staining treated U87-MG cultured and subcutaneous tumors
1) Control
2) Temozolomide



Immunocytochemistry/ Immunofluorescence - Anti-LC3B antibody (ab51520)

LC3B Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-LC3B antibody

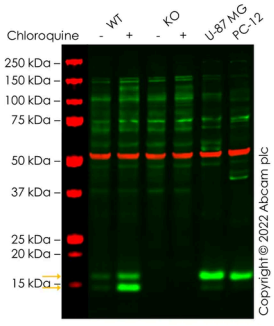
Immunocytochemistry/Immunofluorescence analysis of HeLa cells using anti-LC3B antibody(red). Nuclei were counterstained with DAPI (blue).



Immunocytochemistry/ Immunofluorescence - Anti-LC3B antibody (ab51520)

LC3B Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-LC3B antibody

ab51520 at 1/2000 dilution staining treated U373-MG cells;
1) Control
2) C_2-ceramide.
The nuclei were stained with DAPI.



Western blot - Anti-LC3B antibody (ab51520)

False colour image of Western blot: Anti-LC3B antibody staining at 1 ug/ml, shown in green; Mouse anti-Alpha Tubulin [DM1A] (ab7291) loading control staining at 1/20000 dilution, shown in red. In Western blot, ab63817 was shown to bind specifically to LC3B. A band was observed at 16/14 kDa (yellow arrows) in treated wild-type HepG2 cell lysates with no signal observed at this size in MAP1LC3B knockout cell line ab277828 (knockout cell lysate ab283796). To generate this image, wild-type and MAP1LC3B knockout HepG2 cell lysates were analysed. First, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 3 % milk in TBS-0.1 % Tween® 20 (TBS-T) before incubation with primary antibodies overnight at 4 °C. Blots were washed four times in TBS-T, incubated with secondary antibodies for 1 h at room temperature, washed again four times then imaged. Secondary antibodies used were Goat anti-Rabbit IgG H&L 800CW and Goat anti-Mouse IgG H&L 680RD at 1/20000 dilution.
All lanes:
Western blot - Anti-LC3B antibody (ab51520) at 1/3000 dilution

Lane 1:
Wild-type HepG2 untreated control cell lysate at 20 µg

Lane 2:
Wild-type HepG2 Treated Chloroquine (50 uM, 16 h) cell lysate at 20 µg

Lane 3:
MAP1LC3B knockout HepG2 untreated control cell lysate at 20 µg

Lanes 3 - 4:
Western blot - Human MAP1LC3B knockout Hep G2 cell line (ab277828)

Lanes 3 - 4:
Western blot - Human MAP1LC3B knockout Hep G2 cell lysate (ab283796)

Lane 4:
MAP1LC3B knockout HepG2 Treated Chloroquine (50 uM, 16 h) cell lysate at 20 µg

Lane 5:
U-87 MG cell lysate at 20 µg

Lane 6:
PC-12 cell lysate at 20 µg

Performed under reducing conditions.

Predicted band size: 15 kDa

Observed band size: 14 kDa, 16 kDa

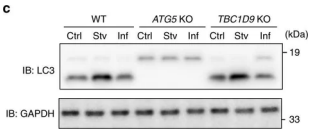


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Western blot - Anti-LC3B antibody (ab51520)

LC3B Western blot staining using rabbit Anti-LC3B antibody

Western Blotting using Anti-LC3B antibody, ab51520. Publication image from Nozawa, T. et al., 2020, Nat Commun, 32034138. Legend direct from paper.

TBC1D9 is involved in xenophagy during GAS infection.a, b Recruitment of the indicated proteins to invading GAS. a Representative confocal images and b quantification of GAS-positive cells. c, d Conversion of LC3-I to LC3-II. c Representative western blot of LC3 during starvation and GAS infection and d quantification of LC3-II/LC3-I ratio. e, f Localization of ULK1 in GAS-infected cells. e Representative confocal images of ULK1 recruitment to ubiquitin-coated GAS and f quantification of ULK1-positive GAS. g Intracellular bacterial CFU at 6 h p.i in WT and TBC1D9-KO HeLa cells. Scale bars, 10 µm. Data in (b) (n > 200 cells per condition), (d, f) (n > 50 bacteria per condition), and (g) represent the mean ± SEM of three independent experiments. P values calculated by two-tailed Student’ s t test.

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