abcam

ab250668

Anti-ATG4C antibody [EPR15001] - BSA and Azide free

Recombinant | RabMAb | KO Validated

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EPR15001
Purification technique	Affinity purification Protein A

Reactivity data

WB

Tested

Species	Human
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	-
Notes	-

Target data

See full target information ATG4C

Function

Cysteine protease that plays a key role in autophagy by mediating both proteolytic activation and delipidation of ATG8 family proteins (PubMed:21177865, PubMed:29458288, PubMed:30661429). The protease activity is required for proteolytic activation of ATG8 family proteins: cleaves the C-terminal amino acid of ATG8 proteins MAP1LC3 and GABARAPL2, to reveal a C-terminal glycine (PubMed:21177865). Exposure of the glycine at the C-terminus is essential for ATG8 proteins conjugation to phosphatidylethanolamine (PE) and insertion to membranes, which is necessary for autophagy (By similarity). In addition to the protease activity, also mediates delipidation of ATG8 family proteins (PubMed:29458288, PubMed:33909989). Catalyzes delipidation of PE-conjugated forms of ATG8 proteins during macroautophagy (PubMed:29458288, PubMed:33909989). Compared to ATG4B, the major protein for proteolytic activation of ATG8 proteins, shows weaker ability to cleave the C-terminal amino acid of ATG8 proteins, while it displays stronger delipidation activity (PubMed:29458288). In contrast to other members of the family, weakly or not involved in phagophore growth during mitophagy (PubMed:33773106).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C

Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab250668 is the carrier-free version of ab183516.

Patented technology

Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?

This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Conjugation ready

Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility

This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

Supplementary info

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

Activity summary	ATG4C also known as autophagin-3 is a cysteine protease involved in autophagy an important cellular degradation pathway. With a molecular mass of approximately 52 kDa the target plays a significant role in cytosolic processing. Primarily ATG4C acts in various tissues including the brain liver and muscle where it participates in the processing of essential autophagy-related proteins. The protein provides an enzymatic function necessary for the maturation and recycling of autophagosomes structures required for autophagy.
Biological function summary	ATG4C cleaves the ATG8 family proteins such as LC3 at a conserved glycine residue facilitating their conjugation to phosphatidylethanolamine. This step is critical in the elongation of the isolation membrane during autophagosome formation. ATG4C is not typically found as part of a large protein complex but its interaction

	with ATG8 family members is an important regulatory point. Its function in recycling ATG8-family proteins helps maintain cellular homeostasis and responds to stress conditions like nutrient deprivation.
Pathways	ATG4C plays a central role in the autophagy pathway essential for cell survival differentiation and tissue remodeling. The protein closely interacts with components of the autophagy machinery such as ATG5 and the ULK1 complex coordinating the effective sequestration of cytoplasmic constituents. Its activity impacts the broader cellular pathways involving mTOR and AMPK both of which regulate cellular energy status and respond to metabolic signals positioning ATG4C as a vital component in these pathways.
Associated diseases and disorders	Alterations in ATG4C function have been linked to cancer and neurodegenerative disorders. In cancer dysregulated autophagy affects tumor growth and therapy resistance. ATG4C is related to Beclin 1 which regulates autophagy initiation in tumors. In neurodegeneration impaired autophagy exacerbates the accumulation of protein aggregates. Misfunction of ATG4C can influence these processes showing a direct connection to p62/SQSTM1 a protein involved in defective degradation that leads to 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

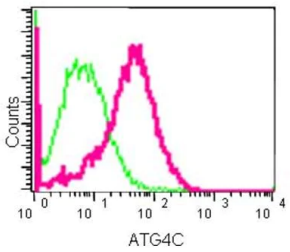
We do not recommend this combination. It is not covered by our product promise.

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.

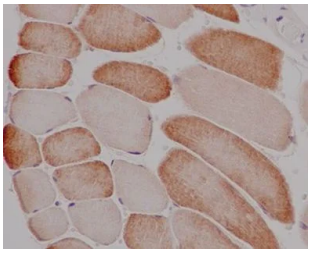
4 product images



Flow Cytometry (Intracellular) - Anti-ATG4C antibody [EPR15001] - BSA and Azide free (ab250668)

ATG4C Flow Cytometry (Intracellular) staining using rabbit Anti-ATG4C antibody

This data was developed using ab183516, the same antibody clone in a different buffer formulation.
Intracellular flow cytometric analysis of 2% paraformaldehyde-fixed 293 cells labeling ATG4C with ab183516 at 1/100 dilution (green). Goat anti-rabbit IgG (FITC) at 1/150 dilution was used as the secondary antibody. Rabbit monoclonal IgG was used as the isotype control (red).

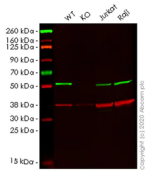


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ATG4C antibody [EPR15001] - BSA and Azide free (ab250668)

ATG4C Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-ATG4C antibody

This data was developed using ab183516, the same antibody clone in a different buffer formulation.
Immunohistochemical analysis of paraffin-embedded Human skeletal muscle tissue labeling ATG4C with ab183516 at 1/250 dilution. The slide is counterstained with Hematoxylin.

Perform heat mediated antigen retrieval with EDTA buffer pH 9 before commencing with IHC staining protocol.



Western blot - Anti-ATG4C antibody [EPR15001] - BSA and Azide free (ab250668)

ATG4C Western blot staining using rabbit Anti-ATG4C antibody

This data was developed using ab183516, the same antibody clone in a different buffer formulation.
Lanes 1-4: Merged signal (red and green). Green - ab183516 observed at 52 kDa. Red - loading control ab8245 observed at 36 kDa.

ab183516 Anti-ATG4C antibody [EPR15001] was shown to specifically react with ATG4C in wild-type HEK293T cells. Loss of signal was observed when knockout cell line ab267324 (knockout cell lysate ab257847) was used. Wild-type and ATG4C knockout samples were subjected to SDS-PAGE. ab183516 and Anti-GAPDH antibody [6C5] - Loading Control (ab8245) were incubated overnight at 4°C at 1 in 1000 dilution and 1 in 20000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preadsorbed (ab216776) secondary antibodies at 1 in 20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-ATG4C antibody [EPR15001] (ab183516) at 1/1000 dilution

Lane 1:
Wild-type HEK293T cell lysate at 20 µg

Lane 2:
ATG4C knockout HEK293T cell lysate at 20 µg

Lane 2:

Western blot - Human ATG4C knockout HEK-293T cell line (ab267324)

Lane 3:
Jurkat cell lysate at 20 µg

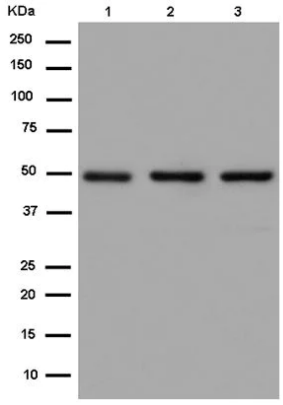
Lane 4:
Raji cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) at 1/10000 dilution

Predicted band size: 52 kDa

Observed band size: 52 kDa



Western blot - Anti-ATG4C antibody [EPR15001] - BSA and Azide free (ab250668)

This data was developed using ab183516, the same antibody clone in a different buffer formulation.
All lanes:
Western blot - Anti-ATG4C antibody [EPR15001] (ab183516) at 1/20000 dilution

Lane 1:
Jurkat cell lysate at 20 µg

Lane 2:
Raji cell lysate at 20 µg

Lane 3:
293 cell lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/1000 dilution

Predicted band size: 52 kDa

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