abcam

ab233562

Anti-ATG3 antibody [2C10A12]

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	Preservative: 0.05% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Recombinant Fragment Protein within Human ATG3 aa 1-100. The exact immunogen used to generate this antibody is proprietary information. Database link Q9NT62
Clone number	2C10A12
Purification technique	Affinity purification Protein G
Purification notes	Purified from TCS.

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	1/200 - 1/400
Notes	-

Predicted

Species	Mouse, Rat, Cow
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1/500 - 1/2000
Notes	-

Predicted

Species	Mouse, Rat, Cow
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/200 - 1/1000
Notes	-

Predicted

Species	Mouse, Rat, Cow
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human

Dilution info	1/200 - 1/1000
Notes	-

Predicted

Species	Mouse, Rat, Cow
Dilution info	-
Notes	-

Target data

See full target information ATG3

Function

E2 conjugating enzyme that catalyzes the covalent conjugation of the C-terminal Gly of ATG8-like proteins (GABARAP, GABARAPL1, GABARAPL2 or MAP1LC3A) to the amino group of phosphatidylethanolamine (PE)-containing lipids in the membrane resulting in membrane-bound ATG8-like proteins which is one of the key steps in the development of autophagic isolation membranes during autophagosome formation (PubMed:24191030, PubMed:33446636, PubMed:37252361). Cycles back and forth between binding to ATG7 for loading with the ATG8-like proteins and binding to E3 enzyme, composed of ATG12, ATG5 and ATG16L1 to promote ATG8-like proteins lipidation (PubMed:11825910, PubMed:12207896, PubMed:12890687, PubMed:16704426, PubMed:24186333). Also plays a role as a membrane curvature sensor that facilitates LC3/GABARAP lipidation by sensing local membrane stress associated with lipid-packing defects as occurs with high molar proportions of conical lipids or strident membrane curvature (By similarity). Interacts with negatively-charged membranes promoting membrane tethering and enhancing LC3/GABARAP lipidation (PubMed:29142222). Also acts as an autocatalytic E2-like enzyme by catalyzing the conjugation of ATG12 to itself in an ATG7-dependent manner, this complex thus formed, plays a role in mitochondrial homeostasis but not in autophagy (By similarity). ATG12-ATG3 conjugation promotes late endosome to lysosome trafficking and basal autophagosome maturation via its interaction with PDCD6IP (By similarity). ATG12-ATG3 conjugate is also formed upon viccina virus infection, leading to the disruption the cellular autophagy which is not necessary for vaccinia survival and proliferation (By similarity). Promotes primary ciliogenesis by removing OFD1 from centriolar satellites via the autophagic pathway (By similarity).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage duration	1-2 weeks

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

Supplementary info

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

Activity summary	ATG3 also known as Autophagy-related protein 3 is an essential enzyme in the autophagy process. Its molecular weight is approximately 36 kDa. This protein facilitates the conjugation of LC3 (microtubule-associated protein 1A/1B-light chain 3) by acting as an E2-like enzyme. It is mainly expressed in tissues with high rates of autophagy including liver heart and brain.
Biological function summary	ATG3 plays an important role in the elongation of the autophagic membrane. It operates as a part of the autophagy machinery working closely with ATG7 an E1-like enzyme to transfer phosphatidylethanolamine (PE) to LC3 converting it into LC3-II. This lipidated form of LC3 is essential in the expansion and closure of the isolation membrane which forms the autophagosome the core structure for degradation and recycling of cellular components.
Pathways	ATG3 is a central player in the macroautophagy pathway a process critical for cellular homeostasis. It interacts with ATG7 to facilitate the lipidation of ATG8 family proteins which are important for autophagosome formation. Moreover ATG3 also links to apoptosis pathways where its balance with pro-apoptotic proteins helps regulate cell death processes.
Associated diseases and disorders	ATG3 has been implicated in neurodegenerative diseases like Alzheimer's. This relates partly to its role in protein clearance which is essential for preventing toxic aggregations. Altered ATG3 function can lead to accumulation of misfolded proteins exacerbating disease. Moreover ATG3's interaction with proteins in the cancer-related pathways such as p53 shows its involvement in tumorigenesis through its influence on cell survival and death mechanisms.

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.

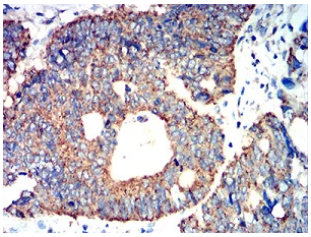
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In the unlikely event of one of our products not working as expected, you are covered by our product promise.

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

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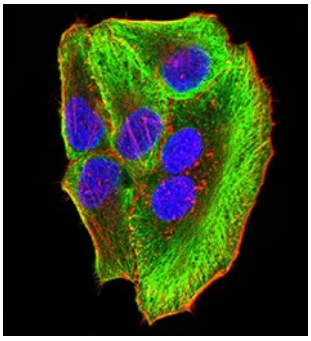
7 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ATG3 antibody [2C10A12] (ab233562)

ATG3 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-ATG3 antibody

Paraffin-embedded human rectum cancer tissue stained for ATG3 with ab233562 at a 1/200 dilution in immunohistochemical analysis. DAB staining.



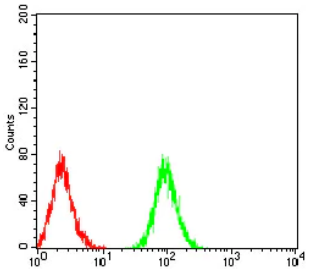
Immunocytochemistry/ Immunofluorescence - Anti-ATG3 antibody [2C10A12] (ab233562)

ATG3 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-ATG3 antibody

SMMC-7721 cells stained for ATG3 (green) using ab233562 (1/200 dilution) in ICC/IF.
Blue: DRAQ5 fluorescent DNA dye.

Red: Actin filaments have been labeled with Alexa Fluor® 555 phalloidin.

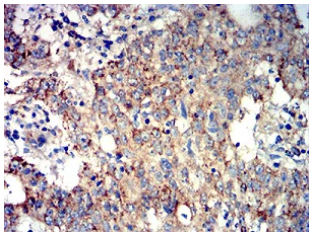
Secondary antibody: Goat anti-Mouse IgG (H+L) DyLight 488.



Flow Cytometry - Anti-ATG3 antibody [2C10A12] (ab233562)

ATG3 Flow Cytometry staining using mouse Anti-ATG3 antibody

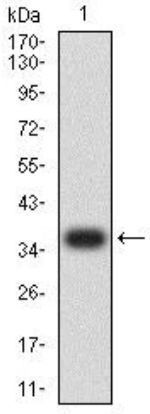
Flow Cytometry analysis of Jurkat (Human T cell leukemia cell line from peripheral blood) cells, labeling ATG3 with ab233562 at a 1/200 dilution (green) compared to a negative control (red).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ATG3 antibody [2C10A12] (ab233562)

ATG3 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-ATG3 antibody

Paraffin-embedded human stomach cancer tissue stained for ATG3 with ab233562 at a 1/200 dilution in immunohistochemical analysis. DAB staining.



Western blot - Anti-ATG3 antibody [2C10A12] (ab233562)

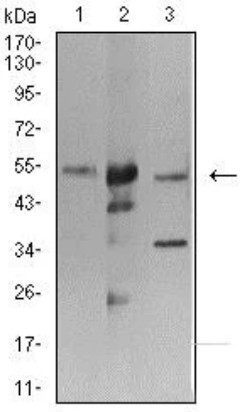
ATG3 Western blot staining of Recombinant human ATG3 protein (amino acids 1-100) using mouse Anti-ATG3 antibody

(Expected MW is 37.3 kDa)
Lane 1:
Western blot - Anti-ATG3 antibody [7A1D1] (ab233560) at 1/500 dilution

Lane 1:
Western blot - Anti-ATG3 antibody [2C10A12] (ab233562) at 1/500 dilution

All lanes:
Recombinant human ATG3 protein (amino acids 1-100)

Predicted band size: 35 kDa



Western blot - Anti-ATG3 antibody [2C10A12] (ab233562)

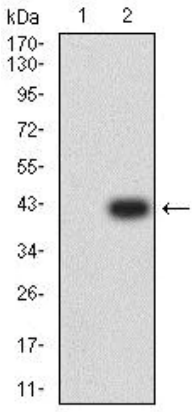
All lanes:
Western blot - Anti-ATG3 antibody [2C10A12] (ab233562) at 1/500 dilution

Lane 1:
K562 (Human chronic myelogenous leukemia cell line from bone marrow) cell lysate

Lane 2:
HeLa (Human epithelial cell line from cervix adenocarcinoma) cell lysate

Lane 3:
THP-1 (Human monocytic leukemia cell line) cell lysate

Predicted band size: 35 kDa



Western blot - Anti-ATG3 antibody [2C10A12] (ab233562)

Lanes 1 - 2:
Western blot - Anti-ATG3 antibody [7A1D1] (ab233560) at 1/500 dilution

Lanes 1 - 2:
Western blot - Anti-ATG3 antibody [2C10A12] (ab233562) at 1/500 dilution

Lane 1:
HEK-293 (Human epithelial cell line from embryonic kidney) cell lysate

Lane 2:

ATG3 (amino acids: 1-100) - hIgGFc transfected HEK-293 (Human epithelial cell line from embryonic kidney) cell lysate

Predicted band size: 35 kDa

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