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ATG12 Antibody

Catalog # ASC10625

Product Information

Application	WB, IF, E, IHC-P
Primary Accession	O94817
Other Accession	EAW48955, 119569340
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	15113
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	ATG12 antibody can be used for the detection of ATG10 by Western blot at 0.5 - 1 □g/mL. Antibody can also be used for immunohistochemistry starting at 2.5 □g/mL. For immunofluorescence start at 20 □g/mL.

Additional Information

Gene ID	9140
Other Names	Ubiquitin-like protein ATG12, Autophagy-related protein 12, APG12-like, ATG12, APG12, APG12L
Target/Specificity	ATG12;
Reconstitution & Storage	ATG12 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	ATG12 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	ATG12 (HGNC:588)
Synonyms	APG12, APG12L
Function	Ubiquitin-like protein involved in autophagy vesicles formation. Conjugation with ATG5 through a ubiquitin-like conjugating system involving also ATG7 as an E1-like activating enzyme and ATG10 as an E2-like conjugating enzyme, is essential for its function. The ATG12-ATG5 conjugate acts as an E3-like enzyme which is required for lipidation of ATG8 family proteins and their association to the vesicle membranes. As part of the ATG8 conjugation system with ATG5 and ATG16L1, required for recruitment of LRRK2 to stressed

	lysosomes and induction of LRRK2 kinase activity in response to lysosomal stress (By similarity).
Cellular Location	Cytoplasm. Preautophagosomal structure membrane; Peripheral membrane protein. Note=TECPR1 recruits the ATG12- ATG5 conjugate to the autolysosomal membrane
Tissue Location	Ubiquitous..

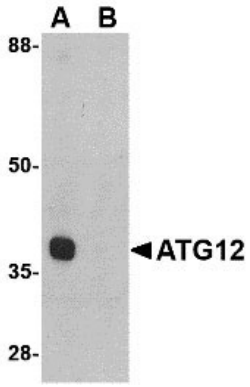
Background

ATG12 Antibody: Autophagy, the process of bulk degradation of cellular proteins through an autophagosomic-lysosomal pathway is important for normal growth control and may be defective in tumor cells. It is involved in the preservation of cellular nutrients under starvation conditions as well as the normal turnover of cytosolic components. This process is negatively regulated by TOR (Target of rapamycin) through phosphorylation of autophagy protein APG1. ATG12, another member of the autophagy protein family, forms a conjugate with ATG5; this conjugate has a ubiquitin-protein ligase (E3)-like activity for protein lipidation in autophagy. This conjugate also associates with innate immune response proteins such as RIG-I and VISA (also known as IPS-1), inhibiting type I interferon production and permitting viral replication in host cells. ATG12 has also been shown to interact with ATG10 in human embryonic kidney cells in the presence of ATG7. At least two isoforms of ATG12 are known to exist.

References

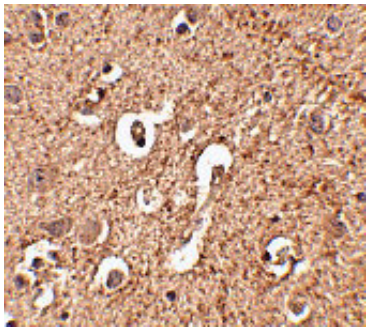
Gozuacik D and Kimchi A. Autophagy as a cell death and tumor suppressor mechanism. Oncogene2004; 23:2891-906.
Kisen GO, Tessitore L, Costelli P, et al. Reduced autophagic activity in primary rat hepatocellular carcinoma and ascites hepatoma cells. Carcinogenesis1993; 14:2501-5.
Kamada Y, Funakoshi T, Shintani T, et al. Tor-mediated induction of autophagy via Apg1 protein kinase complex. J. Cell. Biol.2000; 150:1507-13.
Hanada T, Noda NN, Satomi Y, et al. The Atg12-Atg5 conjugate has a novel E3-like activity for protein lipidation in autophagy. J. Biol. Chem.2007; 282:37298-302.

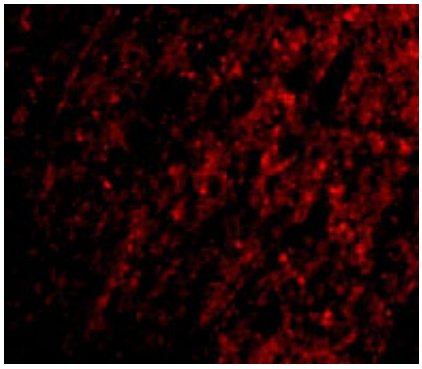
Images



Western blot analysis of ATG12 in mouse heart tissue lysate with ATG12 antibody at 1 µg/mL in (A) the absence and (B) the presence of blocking peptide.

Immunohistochemistry of ATG12 in human brain tissue with ATG12 antibody at 2.5 µg/mL.





Immunofluorescence of ATG12 in Human Brain cells with ATG12 antibody at 20 µg/mL.

Citations

- Transautophagy: Research and Translation of Autophagy Knowledge.
- SGK1 Inhibits Autophagy in Murine Muscle Tissue.