

ATG5 (E-9): sc-515347



The Power to Question

BACKGROUND

In yeast, autophagy is an essential process for survival during nutrient starvation and cell differentiation. The process of autophagy is characterized as a non-selective degradation of cytoplasmic proteins into membrane structures called autophagosomes, and it is dependent on several proteins, including the autophagy proteins ATG5 (APG5) and APG7. Yeast Apg7 and the human homolog, APG7, share similarities with the ubiquitin-activating enzyme E1 in *Saccharomyces cerevisiae* and are likewise responsible for enzymatically activating the autophagy conjugation system. Apg5 and the human homolog, ATG5, also designated APG5, apoptosis-specific protein or APS, function as substrates for the autophagy protein Apg12. These proteins are covalently bonded together to form Apg12/ATG5 conjugates, which are required for the progression of autophagy.

CHROMOSOMAL LOCATION

Genetic locus: ATG5 (human) mapping to 6q21; Atg5 (mouse) mapping to 10 B2.

SOURCE

ATG5 (E-9) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 250-275 at the C-terminus of ATG5 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-515347 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

ATG5 (E-9) is recommended for detection of ATG5 long and short isoforms of human origin and ATG5 of mouse and rat origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for ATG5 siRNA (h): sc-41445, ATG5 siRNA (m): sc-41446, ATG5 shRNA Plasmid (h): sc-41445-SH, ATG5 shRNA Plasmid (m): sc-41446-SH, ATG5 shRNA (h) Lentiviral Particles: sc-41445-V and ATG5 shRNA (m) Lentiviral Particles: sc-41446-V.

Molecular Weight of human ATG5 long/short isoforms: 32/23 kDa.

Molecular Weight of mouse/rat ATG5: 32 kDa.

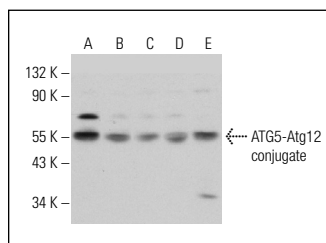
Molecular Weight of ATG5-Atg12 conjugate: 50 kDa.

Positive Controls: SH-SY5Y cell lysate: sc-3812, HeLa whole cell lysate: sc-2200 or HEL 92.1.7 cell lysate: sc-2270.

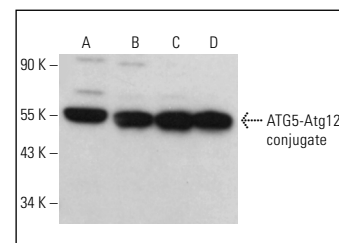
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



APG5 (E-9): sc-515347. Western blot analysis of ATG5-Atg12 conjugate expression in SH-SY5Y (A), HEL 92.1.7 (B), Raji (C), THP-1 (D) and HeLa (E) whole cell lysates.



APG5 (E-9): sc-515347. Western blot analysis of ATG5-Atg12 conjugate expression in Raji (A), CCRF-CEM (B), HL-60 (C) and U-87 MG (D) whole cell lysates.

SELECT PRODUCT CITATIONS

- Hu, Y., et al. 2016. Activation of MTOR in pulmonary epithelium promotes LPS-induced acute lung injury. *Autophagy* 12: 2286-2299.
- Cho, J.H., et al. 2017. Downregulation of SIRT1 signaling underlies hepatic autophagy impairment in glycogen storage disease type Ia. *PLoS Genet.* 13: e1006819.
- Huang, Q., et al. 2021. Autophagy core protein ATG5 is required for elongating spermatid development, sperm individualization and normal fertility in male mice. *Autophagy* 17: 1753-1767.
- Kang, K.A., et al. 2022. Anticancer effect of Korean red ginseng via autophagy- and apoptosis-mediated cell death. *Nutrients* 14: 3558.
- Gautam, S., et al. 2023. Molecular mechanism underlying impaired hepatic autophagy in glycogen storage disease type Ib. *Hum. Mol. Genet.* 32: 262-275.
- Lee, M.H., et al. 2024. Transcriptome-based deep learning analysis identifies drug candidates targeting protein synthesis and autophagy for the treatment of muscle wasting disorder. *Exp. Mol. Med.* 56: 904-921.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.