

Atg4a (D-14): sc-131432

BACKGROUND

Autophagy, a process that results in the lysosomal-dependent degradation of cytosolic compartments, is carried out by the autophagosome, which is a double-membrane vesicle whose formation is catalyzed by several autophagy-related gene (Atg) proteins. Atg4a (ATG4 autophagy related 4 homolog A), also known as APG4A or AURL2, is a 398 amino acid protein that localizes to the cytoplasm and belongs to the peptidase C54 family. Expressed in a variety of tissues, including brain, skeletal muscle and fetal liver, Atg4a functions as a cysteine protease that cleaves the C-terminal part of target proteins, such as GABARAP and MAP1LC3, and plays an essential role in autophagy. Atg4a exists as multiple alternatively spliced isoforms and is functionally inhibited by N-ethylmaleimide.

REFERENCES

- Mariño, G., Uría, J.A., Puente, X.S., Quesada, V., Bordallo, J. and López-Otín, C. 2003. Human autophagins, a family of cysteine proteinases potentially implicated in cell degradation by autophagy. *J. Biol. Chem.* 278: 3671-3678.
- Scherz-Shouval, R., Sagiv, Y., Shorer, H. and Elazar, Z. 2003. The COOH terminus of GATE-16, an *intra*-Golgi transport modulator, is cleaved by the human cysteine protease HsApg4A. *J. Biol. Chem.* 278: 14053-14058.
- Kabeya, Y., Mizushima, N., Yamamoto, A., Oshitani-Okamoto, S., Ohsumi, Y. and Yoshimori, T. 2004. LC3, GABARAP and GATE-16 localize to autophagosomal membrane depending on form-II formation. *J. Cell. Sci.* 117: 2805-2812.
- Tanida, I., Sou, Y.S., Minematsu-Ikeguchi, N., Ueno, T. and Kominami, E. 2006. Atg8L/Apg8L is the fourth mammalian modifier of mammalian Atg8 conjugation mediated by human Atg4b, Atg7 and Atg3. *FEBS J.* 273: 2553-2562.
- Scherz-Shouval, R., Shvets, E., Fass, E., Shorer, H., Gil, L. and Elazar, Z. 2007. Reactive oxygen species are essential for autophagy and specifically regulate the activity of Atg4. *EMBO J.* 26: 1749-1760.
- Online Mendelian Inheritance in Man, OMIM™. 2007. Johns Hopkins University, Baltimore, MD. MIM Number: 300663. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>

CHROMOSOMAL LOCATION

Genetic locus: ATG4A (human) mapping to Xq22.3.

SOURCE

Atg4a (D-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of Atg4a of human origin.

STORAGE

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

PROTOCOLS

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

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-131432 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Atg4a (D-14) is recommended for detection of Atg4a isoforms 1, 2, 3 and 5 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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); non cross-reactive with Atg4a isoform 4.

Suitable for use as control antibody for Atg4a siRNA (h): sc-91197, Atg4a shRNA Plasmid (h): sc-91197-SH and Atg4a shRNA (h) Lentiviral Particles: sc-91197-V.

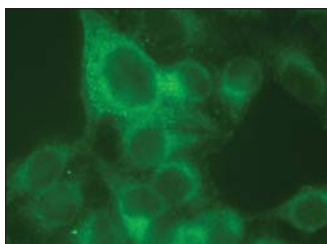
Molecular Weight of Atg4a: 45 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



Atg4a (D-14): sc-131432. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

RESEARCH USE

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