

Product Information

Anti-Atg101

produced in rabbit, affinity isolated antibody

Product Number **SAB4200175**

Product Description

Anti-Atg101 is produced in rabbit using as the immunogen a synthetic peptide corresponding to a fragment of human Atg101 (GeneID: 60673), conjugated to KLH. The corresponding sequence is identical in mouse, rat, monkey, bovine, and canine Atg101. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-Atg101 recognizes human Atg101. The antibody can be used in several immunochemical techniques including immunoblotting (~30 kDa). Detection of the Atg101 band by immunoblotting is specifically inhibited by the immunizing peptide.

Macroautophagy, usually referred to as autophagy, is a major pathway for bulk degradation of cytoplasmic constituents and organelles. In this process, portions of the cytoplasm are sequestered into double membrane vesicles, the autophagosomes, and subsequently delivered to the lysosome for degradation and recycling.^{1,2}

Although autophagy is a constitutive cellular event, it is enhanced under certain conditions such as starvation, hormonal stimulation, and drug treatments.³ Autophagy is required for normal turnover of cellular components during starvation. It plays an essential role in cellular differentiation, cell death, and aging. Defective autophagy may contribute to certain human diseases such as cancer, neurodegenerative diseases, muscular disorders, and pathogen infections.^{4,5}

Autophagy is an evolutionarily conserved pathway seen in all eukaryotic cells.¹ At least 16 ATG genes required for autophagosome formation were identified in yeast by genetic screens. For many of these genes, related homologs have been identified in mammals.⁶ Atg101 is a mammalian Atg13 binding protein essential for autophagy. Atg101 is conserved in various eukaryotes, but not in yeast. Atg13 forms a stable complex with ULK1 and FIP200. Atg101 associates with the ULK1-Atg13-FIP200 complex through direct interaction with Atg13. mTOR interacts with the ULK1-Atg13-FIP200 complex in a nutrient dependent manner, suggesting that mTOR regulates autophagy through this complex.⁷⁻¹¹

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as a preservative.

Antibody Concentration: ~1.0 mg/mL

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

Store at -20 °C. For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a working antibody concentration of 0.25-0.5 µg/mL is recommended using whole extracts of HEK-293T cells overexpressing human Atg101.

Note: In order to obtain best results in various techniques and preparations, it is recommended to determine optimal working dilutions by titration.

References

1. Klionsky, D.J., and Emr, S.D., *Science*, **290**, 1717-1721 (2000).
2. Kuma, A., et al., *Nature*, **432**, 1032-1036 (2004).
3. Kabeya, Y., et al., *EMBO J.*, **19**, 5720-5728 (2000).
4. Reggiori, F., and Klionsky, D.J., *Eukaryotic Cell*, **1**, 11-21 (2002).
5. Shintani, T., and Klionsky, D.J., *Science*, **306**, 990-995 (2004).
6. Klionsky, D.J., et al., *Develop. Cell*, **5**, 539-545 (2003).

7. Hosokawa, N., et al., *Mol. Biol. Cell*, **20**, 1981-1991 (2009).
8. Jung, C.H., et al., *Mol. Biol. Cell*, **20**, 1992-2003 (2009).
9. Mercer, C.A., et al., *Autophagy*, **5**, 649-662 (2009).
10. Hosokawa, N., et al., *Autophagy*, **5**, 1-7 (2009).
11. Mizushima, N., *Curr. Opin. Cell Biol.*, **22**, 132-139 (2010).

VS,ST,CS,PHC,MAM 07/19-1