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Product Information

Anti-Atg1/ULK1
produced in rabbit, affinity isolated antibody

Catalog Number **A7481**

Product Description

Anti-Atg1/ULK1 is produced in rabbit using as immunogen a synthetic peptide corresponding to amino acids 415-430 of mouse Atg1/ULK1 (GeneID: 22241), conjugated to KLH via a cysteine residue. The corresponding sequence is identical in rat and differs by 3 amino acids in human. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti- Atg1/ULK1 recognizes rat and mouse Atg1/ULK1. The antibody can be used in immunoblotting (~150 kDa). Detection of the Atg1/ULK1 band by immunoblotting is specifically inhibited with 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]

The autophagic-specific protein kinase Atg1 is a negative regulator of the target of rapamycin (TOR)/S6 kinase (S6K) pathway.[7] Atg1 forms a complex with Atg13, which is essential for autophagy in yeast. In mammals, two Atg1 homologs have been identified, ULK1 (uncoordinated 51-like kinase 1) and ULK2.[8] The Unc-51 family of serine/threonine kinases was shown to be important for axon growth and endocytosis.[9] Knockdown of ULK1, but not ULK2, inhibits the autophagic response. Overexpression of ULK1 also inhibits autophagy, suggesting that ULK1 may have multiple mechanisms for regulating autophagy.[8] ULK1 localizes to cytoplasmic structures, some of which are GFP-LC3-positive, and is involved in modulating Atg9 subcellular dynamics.[10]

Reagent

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

Antibody concentration: ~ 1.0 mg/mL

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

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

Product Profile

Immunoblotting: a working concentration of 3-6 μg/mL is recommended using whole extracts of rat PC12. A working concentration of 0.5-1.0 μg/mL is recommended using whole extracts of HEK-293T cells expressing mouse ULK1.

Note: In order to obtain the best results in different techniques and preparations, we recommend determining optimal working concentration by titration.

References

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