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Product Information

Anti-ULK3
produced in rabbit, affinity isolated antibody

Product Number **SAB4200132**

Product Description

Anti-ULK3 is produced in rabbit using as the immunogen a synthetic peptide corresponding to a fragment of human ULK3 (GeneID: 25989), conjugated to KLH. The corresponding sequence differs by 2 amino acids in mouse and 5 in rat ULK3. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-ULK3 recognizes human ULK3. The antibody may be used in several immunochemical techniques including immunoblotting (~50 kDa). Detection of the ULK3 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]

The autophagic-specific protein kinase Atg1 is a negative regulator of the target of rapamycin (TOR)/S6 kinase (S6K) pathway.[7] In mammals, two Atg1 homologs have been identified, ULK1 (uncoordinated 51-like kinase 1) and ULK2.[8]

ULK3 is an autophagy-related protein with an N-terminal kinase domain, which shows high similarity to those of ULK1 and ULK2. ULK3 localizes to the elongating isolation membrane upon autophagy activation. Overexpression of ULK3 induces autophagy and senescence. ULK3 is also a positive regulator of the Hedgehog signaling pathway.[9-11]

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 concentration of 1-2 μg/mL is recommended using whole extracts of human U87 cells.

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. Lee, S.B., et al., *EMBO Rep*., **8**, 360-365 (2007).
8. Chan, E.Y., et al., *J. Biol*. *Chem*., **282**, 25464-25474 (2007).
9. Mizushima, N., *Curr. Opin. Cell Biol.*, **22**, 1-8 (2009).
10. Young, A.R., et al., *Genes Dev.*, **23**, 798-803 (2009).
11. Maloverjan, A., et al., *Exp. Cell Res.*, **316**, 627-637 (2010).

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