Revision 1

#5504 Store at -20C

Atg14 Antibody

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W	H	Endogenous	65	Rabbit	#Q6ZNE5	22863

Product Usage Information

Application	Dilution
Western Blotting	1:1000

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at –20°C. Do not aliquot the antibody.

Specificity/Sensitivity

Atg14 Antibody detects endogenous levels of total Atg14 protein.

Species predicted to react based on 100% sequence homology

Monkey

Source / Purification

Polyclonal antibodies were prepared from animals immunized with a synthetic peptide corresponding to a region surrounding Val215 of human Atg14. Antibodies were purified by protein A and peptide affinity chromatography.

Background

Autophagy is a catabolic process for the autophagosomic-lysosomal degradation of bulk cytoplasmic contents (1,2). Autophagy is generally activated by conditions of nutrient deprivation but is also associated with a number of physiological processes, including development, differentiation, neurodegeneration, infection, and cancer (3). The molecular machinery of autophagy was largely discovered in yeast and is directed by a number of autophagy-related (Atg) genes. These proteins are involved in the formation of autophagosomes, which are cytoplasmic vacuoles that are delivered to lysosomes for degradation. The class III type phosphoinositide 3-kinase (PI3K) Vps34 regulates vacuolar trafficking and autophagy (4,5). Multiple proteins associate with Vps34, including p105/Vps15, Beclin-1, UVRAG, Atg14, and Rubicon (6-12). Atg14 and Rubicon were identified based on their ability to bind to Beclin-1 and participate in unique complexes with opposing functions (9-12). Rubicon, which localizes to the endosome and lysosome, inhibits Vps34 lipid kinase activity; knockdown of Rubicon enhances autophagy and endocytic trafficking (11,12). In contrast, Atg14 localizes to autophagosomes, isolation membranes, and ER and can enhance Vps34 activity. Knockdown of Atg14 inhibits starvation-induced autophagy (11,12).

Background References

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2. Codogno, P. and Meijer, A.J. (2005) *Cell Death Differ* 12 Suppl 2, 1509-18.
3. Levine, B. and Yuan, J. (2005) *J Clin Invest* 115, 2679-88.
4. Corvera, S. (2001) *Traffic* 2, 859-66.
5. Yan, Y. and Backer, J.M. (2007) *Biochem Soc Trans* 35, 239-41.
6. Stack, J.H. et al. (1995) *J Cell Biol* 129, 321-34.
7. Zeng, X. et al. (2006) *J Cell Sci* 119, 259-70.
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9. Itakura, E. et al. (2008) *Mol Biol Cell* 19, 5360-72.
10. Sun, Q. et al. (2008) *Proc Natl Acad Sci USA* 105, 19211-6.
11. Zhong, Y. et al. (2009) *Nat Cell Biol* 11, 468-76.
12. Matsunaga, K. et al. (2009) *Nat Cell Biol* 11, 385-96.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting

Cross-Reactivity Key

H: Human

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