Revision 1

#3415 Store at -20C

Atg3 Antibody

Cell Signaling TECHNOLOGY®

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source:	UniProt ID:	Entrez-Gene Id:
WB	H M R Mk	Endogenous	40	Rabbit	#Q9NT62	64422

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

Atg3 Antibody detects endogenous levels of total Atg3 protein.

Species predicted to react based on 100% sequence homology:

Chicken, Xenopus, Bovine, Dog

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues near the amino terminus of Atg3. Antibodies are purified by protein A and peptide affinity chromatography.

Background

Autophagy is a catabolic process for the autophagosomic-lysosomal degradation of bulk cytoplasmic contents (1). The molecular machinery of autophagy was largely discovered in yeast and referred to as autophagy-related genes (Atg). Formation of the autophagic vesicles involves two ubiquitin-like conjugation systems, Atg12-Atg5 and Atg8-phosphatidylethanolamine (Atg8-PE), which are essential for autophagy and widely conserved in eukaryotes (2). There are at least three Atg8 homologs in mammalian cells, GATE-16, GABARAP, and LC3, that are conjugated by lipids (3,4). Lipid conjugation of Atg8 and its mammalian homologs requires Atg3 (Apg3p/Aut1p in yeast), an ubiquitously expressed E2-like enzyme (5-7). Following C-terminal cleavage by the cysteine protease Atg4, the exposed glycine residue of Atg8 binds to the E1-like enzyme Atg7, is transferred to Atg3, and then conjugated to phophatidylethanolamine. Atg3-deficient mice die within 1 day after birth and are completely defective for the conjugation of Atg8 homlogs and autophagome formation (8).

Background References

1. Reggiori, F. and Klionsky, D.J. (2002) *Eukaryot Cell* 1, 11-21.
2. Ohsumi, Y. (2001) *Nat Rev Mol Cell Biol* 2, 211-6.
3. Kabeya, Y. et al. (2000) *EMBO J* 19, 5720-8.
4. Kabeya, Y. et al. (2004) *J Cell Sci* 117, 2805-12.
5. Tanida, I. et al. (2002) *J Biol Chem* 277, 13739-44.
6. Ichimura, Y. et al. (2000) *Nature* 408, 488-92.
7. Schlumpberger, M. et al. (1997) *J Bacteriol* 179, 1068-76.
8. Sou, Y.S. et al. (2008) *Mol Biol Cell* 19, 4762-75.

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

WB: Western Blotting

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster **X:** Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse **GP:** Guinea Pig **Rab:** rabbit **All:** all species expected

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