Revision 1

#4599 Store at -20C

LC3A (D50G8) XP® Rabbit mAb

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:
WB, IHC-P	H M R	Endogenous	14, 16	Rabbit IgG	#Q9H492	84557

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunohistochemistry (Paraffin)	1:6400

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

Specificity / Sensitivity

LC3A (D50G8) XP® Rabbit mAb detects endogenous levels of total LC3A protein. This antibody may also react with LC3B.

Species predicted to react based on 100% sequence homology:

Monkey, Dog

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues near the amino terminus of human LC3A.

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 it has also been associated with a number of physiological processes including development, differentiation, neurodegenerative diseases, infection, and cancer (3). Autophagy marker Light Chain 3 (LC3) was originally identified as a subunit of microtubule-associated proteins 1A and 1B (termed MAP1LC3) (4) and subsequently found to contain similarity to the yeast protein Apg8/Aut7/Cvt5 critical for autophagy (5). Three human LC3 isoforms (LC3A, LC3B, and LC3C) undergo posttranslational modifications during autophagy (6-9). Cleavage of LC3 at the carboxy terminus immediately following synthesis yields the cytosolic LC3-I form. During autophagy, LC3-I is converted to LC3-II through lipidation by a ubiquitin-like system involving Atg7 and Atg3 that allows for LC3 to become associated with autophagic vesicles (6-10). The presence of LC3 in autophagosomes and the conversion of LC3 to the lower migrating form, LC3-II, have been used as indicators of autophagy (11).

Background References

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3. Levine, B. and Yuan, J. (2005) *J. Clin. Invest.* 115, 2679-88.
4. Mann, S.S. and Hammarback, J.A. (1994) *J. Biol. Chem.* 269, 11492-97.
5. Lang, T. et al. (1998) *EMBO J.* 17, 3597-607.
6. Kabeya, Y. et al. (2000) *EMBO J.* 19, 5720-28.
7. He, H. et al. (2003) *J. Biol. Chem.* 278, 29278-87.
8. Tanida, I. et al. (2004) *J. Biol. Chem.* 279, 47704-10.
9. Wu, J. et al. (2006) *Biochem. Biophys. Res. Commun.* 339, 437-42.
10. Ichimura, Y. et al. (2000) *Nature* 408, 488-92.
11. Kabeya, Y. et al. (2004) *J. Cell Sci.* 117, 2805-12.

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 **IHC-P:** Immunohistochemistry (Paraffin)

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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