Revision 3

#4122 Store at -20C

Beclin-1 (2A4) Mouse mAb

Cell Signaling TECHNOLOGY®

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
WB, IP	H	Endogenous	60	Mouse IgG1	#Q14457	8678

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:50

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

Beclin-1 (2A4) Mouse mAb recognizes endogenous levels of total human Beclin-1 protein.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a recombinant protein specific to a central region within human Beclin-1 protein.

Background

Autophagy is a catabolic process for the autophagosomic-lysosomal degradation of proteins activated in response to nutrient deprivation and in neurodegenerative conditions (1). One of the proteins critical to this process is Beclin-1, the mammalian orthologue of the yeast autophagy protein Apg6/Vps30 (2). Beclin-1 can complement defects in yeast autophagy caused by loss of Apg6 and can also stimulate autophagy when overexpressed in mammalian cells (3). Mammalian Beclin-1 was originally isolated in a yeast two-hybrid screen for Bcl-2 interacting proteins and has been shown to interact with Bcl-2 and Bcl-xL, but not with Bax or Bak (4). While Beclin-1 is generally ubiquitously expressed, research studies have shown it is monoallelically deleted in 40-75% of sporadic human breast and ovarian cancers (5). Beclin-1 is localized within cytoplasmic structures including the mitochondria, although overexpression of Beclin-1 reveals some nuclear staining and CRM1-dependent nuclear export (6). Investigators have demonstrated that Beclin-1-/- mice die early in embryogenesis and Beclin-1-/+ mice have a high incidence of spontaneous tumors. Stem cells from the null mice demonstrate an altered autophagic response, although responses to apoptosis appeared normal (7). Researchers have also found that overexpression of Beclin-1 in virally infected neurons *in vivo* resulted in significant protection against Sindbis virus-induced disease and neuronal apoptosis (4).

Background References

1. Reggiori, F. and Klionsky, D.J. (2002) *Eukaryot Cell* 1, 11-21.
2. Kametaka, S. et al. (1998) *J Biol Chem* 273, 22284-91.
3. Liang, X.H. et al. (1999) *Nature* 402, 672-6.
4. Liang, X.H. et al. (1998) *J Virol* 72, 8586-96.
5. Aita, V.M. et al. (1999) *Genomics* 59, 59-65.
6. Liang, X.H. et al. (2001) *Cancer Res* 61, 3443-9.
7. Yue, Z. et al. (2003) *Proc Natl Acad Sci USA* 100, 15077-82.

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 nonfat dry milk, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

WB: Western Blotting **IP:** Immunoprecipitation

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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