PRODUCT INFORMATION

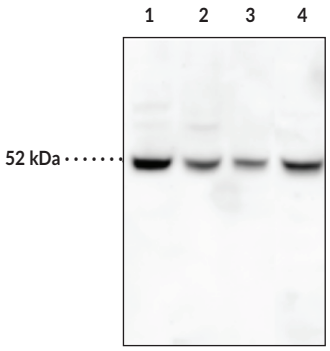
Beclin 1 Monoclonal Antibody (Clone 5F7)

Item No. 25964

Overview and Properties

Contents:	This vial contains 100 µg of protein G-purified monoclonal antibody.
Synonyms:	BECN1, Coiled-coil Myosin-like Bcl-2-interacting Protein, Protein GT197
Immunogen:	Full-length recombinant human Beclin 1
Species Reactivity:	(+) Human and murine; other species not tested
Uniprot No.:	Q14457
Form:	Liquid
Storage:	-20°C (as supplied)
Stability:	≥3 years
Storage Buffer:	PBS, pH 7.2, with 50% glycerol and 0.02% sodium azide
Clone:	5F7
Host:	Mouse
Isotype:	IgG2b
Applications:	ELISA and Western blot (WB); the recommended starting dilution for ELISA and WB is 1:1,000. Other applications were not tested, therefore optimal working concentration/ dilution should be determined empirically.

Image



Lane 1: RAW 264.7 Lysate (50 µg)
Lane 2: HepG2 Lysate (50 µg)
Lane 3: HEK293 Lysate (50 µg)
Lane 4: A431 Lysate (50 µg)

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Description

Beclin 1 (BECN1) is a core component of the class III phosphatidylinositol 3-kinase (PI3K) complex, which generates phosphatidylinositol 3-phosphate (PI3P) and has functions in macroautophagy and the endocytic pathway when associated with ATG14 and UVRAG, respectively.[1] BECN1 is comprised of a BH3 domain involved in Bcl-2/Bcl-xL binding, a coiled-coil domain, and an evolutionarily conserved domain (ECD) that is required for association with the PI3K complex.[2,3] Binding of BECN1 to various BECN1-interacting proteins can regulate the activity of the ATG14-containing PI3K complex, which is required for nucleation of the phagophore during macroautophagy.[1,4] Binding of the anti-apoptotic protein Bcl-2 to BECN1 prevents the association of BECN1 with the PI3K complex and inhibits autophagy, whereas AMBRA1, which also binds directly to BECN1, positively regulates the PI3K complex to facilitate autophagy.[1,3] Transfection of autophagy-deficient MCF-7 human breast cancer cells with wild-type BECN1, but not a BECN1 mutant lacking the ECD, increases starvation-induced autophagy *in vitro* and inhibits tumor growth in an MCF-7 mouse xenograft model, indicating that BECN1 has ECD-dependent tumor suppressor activity.[2] BECN1 heterozygous mice expressing human amyloid precursor protein (*APP*$^{+}$*Becn1*$^{+/-}$ mice) have decreased autophagy in the cerebral cortex, increased extracellular amyloid-β (Aβ) deposits in the frontal cortex, and increased intraneuronal Aβ accumulation in the hippocampus and frontoparietal cortex compared to *APP*$^{+}$*Becn1*$^{+/+}$ mice.[5] BECN1 may also have roles in ischemia/reperfusion injury, Niemann-Pick type C disease, and protection against viral infection.[3] Cayman's Beclin 1 Monoclonal Antibody (Clone 5F7) can be used for Western blot and ELISA applications. The antibody recognizes Beclin 1 at approximately 52 kDa from human samples.

References

1. Parzych, K.R. and Klionsky, D.J. An overview of autophagy: Morphology, mechanism, and regulation. *Antioxid. Redox Signal.* **20(3)**, 460-473 (2014).
2. Furuya, N., Yu, J., Byfield, M., *et al.* The evolutionarily conserved domain of Beclin 1 is required for Vps34 binding, autophagy and tumor suppressor function. *Autophagy* **1(1)**, 46-52 (2005).
3. Cao, Y. and Klionsky, D.J. Physiological functions of Atg6/Beclin 1: A unique autophagy-related protein. *Cell Res.* **17(10)**, 839-849 (2007).
4. Burman, C. and Ktistakis, N.T. Regulation of autophagy by phosphatidylinositol 3-phosphate. *FEBS Lett.* **584(7)**, 1302-1312 (2010).
5. Pickford, D., Masliah, E., Britschgi, M., *et al.* The autophagy-related protein beclin 1 shows reduced expression in early Alzheimer disease and regulates amyloid β accumulation in mice. *J. Clin. Invest.* **118(6)**, 2190-2199 (2008).

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