

POLYCLONAL ANTIBODY

Anti-Beclin 1 pAb

Code No.	Quantity	Form
PD017	100 µL	Affinity Purified

BACKGROUND: Autophagy is a process of intracellular bulk degradation in which cytoplasmic components including organelles are sequestered within double-membrane vesicles that deliver the contents to the lysosome/vacuole for degradation. Beclin 1, the mammalian homologue of yeast Atg6, was first identified Bcl-2-interacting protein. Beclin 1 localizes to the trans-Golgi network, and forms a complex with phosphatidylinositol 3-kinase. Beclin 1 is essential for early autophagosome formation.

SOURCE: This antibody was purified from rabbit serum using affinity column. The rabbit was immunized with the recombinant full-length human Beclin 1.

FORMULATION: 100 µL volume of PBS containing 50% glycerol, pH 7.2. No preservative is contained.

STORAGE: This antibody solution is stable for one year from the date of purchase when stored at -20°C.

REACTIVITY: This antibody reacts with Beclin 1 on Western blotting, Immunoprecipitation and Immunocytochemistry.

APPLICATIONS:

Western blotting: 1:1,000 for chemiluminescence detection system

Immunoprecipitation: 2.5 µL/200 µL of cell extract from 5 x 10⁶ cells

Immunohistochemistry: Not tested*

*It is reported that this antibody can be used in Immunohistochemistry in the reference number 3).

Immunocytochemistry: 1:100

Flow cytometry: Not tested

Detailed procedure is provided in the following **PROTOCOLS.**

SPECIES CROSS REACTIVITY:

Species	Human	Mouse	Rat	Hamster
Cells	293T, HeLa, Raji	NIH/3T3, WR19L	PC12	CHO
Reactivity on WB	+	+	+	+

INTENDED USE:

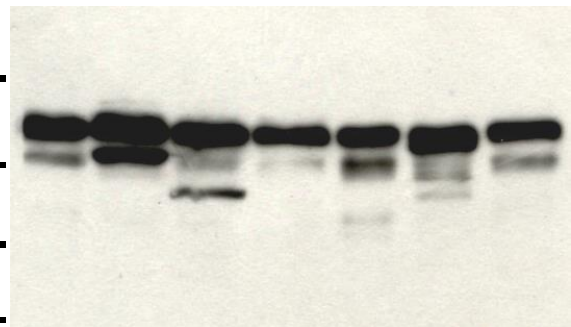
For Research Use Only. Not for use in diagnostic procedures.

REFERENCES:

- 1) Hamasaki, M., *et al.*, *Nature* **495**, 389-393 (2013) [WB]
- 2) Berliocchi, L., *et al.*, *Mol. Pain* **7**, 83 (2011) [WB]
- 3) Russo, R., *et al.*, *Cell Death Dis.* **2**, e144 (2011) [WB, IHC]
- 4) Matsunaga, K., *et al.*, *J. Cell Biol.* **190**, 511-521 (2010) [WB]
- 5) Yu, L., *et al.*, *Science* **304**, 1500-1502 (2004)
- 6) Kihara, A., *et al.*, *EMBO Rep.* **2**, 330-335 (2001)
- 7) Liang, X. H., *et al.*, *Nature* **402**, 672-676 (1999)
- 8) Liang, X. H., *et al.*, *J. Virol.* **72**, 8586-8596 (1998)

kDa 1 2 3 4 5 6 7

75-
50-
35-
30-



Western blot analysis of Beclin 1 expression in 293T (1), HeLa (2), Raji (3), NIH/3T3 (4), WR19L (5), PC12 (6) and CHO (7) using PD017.

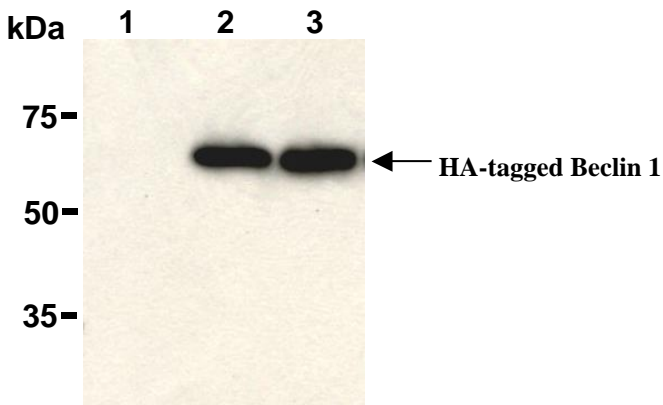
PROTOCOLS:

SDS-PAGE & Western Blotting

- 1) Wash the 1x10⁷ cells 3 times with PBS and suspend with 1 mL of Laemmli's sample buffer.
- 2) Boil the samples for 2 minutes and centrifuge. Load 10 µL of the sample per lane in a 1 mm thick SDS-polyacrylamide gel for electrophoresis.
- 3) Blot the protein to a polyvinylidene difluoride (PVDF) membrane at 1 mA/cm² for 1 hour in a semi-dry transfer system (Transfer Buffer: 25 mM Tris, 190 mM glycine, 20% MeOH). See the manufacture's manual for precise transfer procedure.
- 4) To reduce nonspecific binding, place the membrane in 10% skimmed milk (in PBS, pH 7.2) overnight at 4°C.
- 5) Incubate the membrane with primary antibody diluted with PBS, pH 7.2 containing 1% skimmed milk as suggest in the **APPLICATIONS** for 1 hour at room temperature. (The concentration of antibody will depend on condition.)

- 6) Wash the membrane with PBS-T [0.05% Tween-20 in PBS] (5 minutes x 3 times).
- 7) Incubate the membrane with the 1:10,000 Anti-IgG (Rabbit) pAb-HRP (MBL; code no. 458) diluted with 1% skimmed milk (in PBS, pH 7.2) for 1 hour at room temperature.
- 8) Wash the membrane with PBS-T (5 minutes x 3 times).
- 9) Wipe excess buffer on the membrane, then incubate it with appropriate chemiluminescence reagent for 1 minute. Remove extra reagent from the membrane by dabbing with paper towel, and seal it in plastic wrap.
- 10) Expose to an X-ray film in a dark room for 2 minutes. Develop the film as usual. The condition for exposure and development may vary.

(Positive controls for Western blotting; 293T, HeLa, Raji, NIH/3T3, WR19L, PC12, CHO)



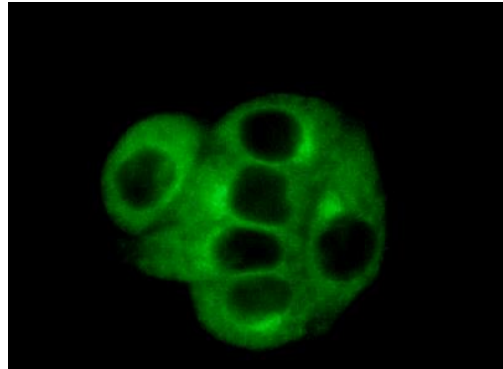
Immunoprecipitation of HA tagged Beclin 1 with normal rabbit IgG (1), anti-HA-tag (2) and PD017 (3). After immunoprecipitated with the antibody, immunocomplex was resolved on SDS-PAGE and immunoblotted with anti-HA-tag monoclonal antibody (MBL; code no. M132-3).

Immunoprecipitation

- 1) Wash the cells 3 times with PBS and suspend with 10 volume of cold Lysis buffer (50 mM Tris-HCl pH 7.5, 150 mM NaCl, 0.05% NP-40) containing appropriate protease inhibitors. Incubate it at 4°C with rotating for 30 minutes, then sonicate briefly (up to 10 seconds).
- 2) Centrifuge the tube at 12,000 x g for 10 minutes at 4°C and transfer the supernatant to another tube.
- 3) Add primary antibody as suggest in the **APPLICATIONS** into 200 μ L of the supernatant. Mix well and incubate with gentle agitation for 30-120 minutes at 4°C. Add 20 μ L of resuspended 50% protein A agarose beads in the cold Lysis buffer. Mix well and incubate with gentle agitation for 60 minutes at 4°C.
- 4) Wash the beads 3-5 times with the cold Lysis buffer (centrifuge the tube at 2,500 x g for 10 seconds).
- 5) Resuspend the beads in 20 μ L of Laemmli's sample buffer, boil for 3-5 minutes, and centrifuge for 5 minutes. Use 10

μ L/lane for the SDS-PAGE analysis.
(See **SDS-PAGE & Western blotting.**)

(Positive control for Immunoprecipitation; transfectant)



Immunocytochemical detection of Beclin 1 on 4% PFA fixed HeLa cells with PD017.

Immunocytochemistry

- 1) Culture the cells in the appropriate condition on a glass slide. (for example, spread 1×10^4 cells for one slide, then incubate in a CO₂ incubator for one night.)
- 2) Wash the cells 3 times with PBS.
- 3) Fix the cells by immersing the slide in PBS containing 4% paraformaldehyde (PFA) for 10 minutes at room temperature.
- 4) The glass slide was washed with PBS 3 times.
- 5) Add the primary antibody diluted with PBS as suggest in the **APPLICATIONS** onto the cells and incubate for 1 hour at room temperature (Optimization of antibody concentration or incubation condition are recommended if necessary).
- 6) The glass slide was washed 2 times with PBS.
- 7) Add 100 μ L of 1:100 Anti-IgG (Rabbit) pAb-FITC (MBL; code no. 234) diluted with PBS onto the cells. Incubate for 30 minutes at room temperature. Keep out light by aluminum foil.
- 8) The glass slide was washed 3 times with PBS.
- 9) Wipe excess liquid from slide but take care not to touch the cells. Never leave the cells to dry.
- 10) Promptly add Permafluor™ aqueous mounting medium (MBL; code no. IM-0752) onto the slide, then put a cover slip on it.

(Positive control for Immunocytochemistry; HeLa)

RELATED PRODUCTS

Antibodies

D038-3	Anti-Bcl-2 mAb (83-8B)
D038-5	Anti-Bcl-2 mAb-PE (83-8B)
PM036	Anti-LC3 pAb [WB, IP, IC, IHC, FCM]
M152-3	Anti-LC3 mAb (4E12) [WB, IP, IC, FCM, EM]
M186-3	Anti-LC3 mAb (8E10) [WB]

PD014 Anti-LC3 pAb [WB]
PD015 Anti-LC3 pAb [IC]
PM046 Anti-LC3 pAb [WB, IC]
M115-3 Anti-LC3 mAb (51-11) [WB]
PM045 Anti-p62 (SQSTM1) pAb
M162-3 Anti-p62 (SQSTM1) (Human) mAb (5F2)
M162-A48 Anti-p62 (SQSTM1) (Human) mAb
-Alexa Fluor[®] 488 (5F2)
M162-A59 Anti-p62 (SQSTM1) (Human) mAb
-Alexa Fluor[®] 594 (5F2)
M162-A64 Anti-p62 (SQSTM1) (Human) mAb
-Alexa Fluor[®] 647 (5F2)
PM066 Anti-p62 C-terminal pAb
PM066-7 Anti-p62 C-terminal pAb-HRP-DirecT
D343-3 Anti-Phospho-p62 (SQSTM1) (Ser403) mAb (4F6)
D344-3 Anti-Phospho-p62 (SQSTM1) (Ser403) mAb (4C8)
PM074 Anti-Phospho-p62 (SQSTM1) (Ser351) pAb
PD017 Anti-Beclin 1 pAb
PM037 Anti-GABARAP pAb
M135-3 Anti-GABARAP mAb (1F4)
PM038 Anti-GATE-16 pAb
PD041 Anti-Atg2A pAb
PM034 Anti-Atg3 pAb
M133-3 Anti-Atg3 mAb (3E8)
M134-3 Anti-Atg4B mAb (9H5)
PM050 Anti-Atg5 pAb
M153-3 Anti-Atg5 mAb (4D3)
PM039 Anti-Atg7 (Human) pAb
PD042 Anti-Atg9A pAb
M151-3 Anti-Atg10 (Human) mAb (5A7)
M154-3 Anti-Atg12 (Human) mAb (6E5)
PD036 Anti-Atg13 (Human) pAb
M183-3 Anti-Atg13 mAb (5G4)
PD026 Anti-Atg14 pAb
M184-3 Anti-Atg14 (Human) mAb (4H8)
PM040 Anti-Atg16L pAb
M150-3 Anti-Atg16L mAb (1F12)
M160-3 Anti-UVRAG mAb (1H4)
PD027 Anti-Rubicon (Human) pAb
M170-3 Anti-Rubicon (Human) mAb (1H6)
PM069 Anti-NRF2 pAb
M200-3 Anti-NRF2 mAb (1F2)
PD037 Anti-Tel2 pAb
PM072 Anti-VMP1 pAb
PM076 Anti-Syntaxin-17 (Human) pAb
M212-3 Anti-Syntaxin-17 (Human) mAb (2F8)

M175-3 Anti- α -Tubulin mAb (2F9)
M175-A48 Anti- α -Tubulin mAb-Alexa Fluor[®] 488 (2F9)
M175-A59 Anti- α -Tubulin mAb-Alexa Fluor[®] 594 (2F9)
M175-A64 Anti- α -Tubulin mAb-Alexa Fluor[®] 647 (2F9)
PM054 Anti- α -Tubulin pAb
PM054-7 Anti- α -Tubulin pAb-HRP-DirecT
M176-3 Anti-EEA1 mAb (3C10)
M176-A48 Anti-EEA1 mAb-Alexa Fluor[®] 488 (3C10)
M176-A59 Anti-EEA1 mAb-Alexa Fluor[®] 594 (3C10)
M176-A64 Anti-EEA1 mAb-Alexa Fluor[®] 647 (3C10)
PM062 Anti-EEA1 pAb
M178-3 Anti-Calnexin mAb (4F10)

M178-A48 Anti-Calnexin mAb-Alexa Fluor[®] 488 (4F10)
M178-A59 Anti-Calnexin mAb-Alexa Fluor[®] 594 (4F10)
M178-A64 Anti-Calnexin mAb-Alexa Fluor[®] 647 (4F10)
PM060 Anti-Calnexin pAb
M181-3 Anti-KDEL mAb (1D5)
PM059 Anti-KDEL pAb
M179-3 Anti-GM130 mAb (5G8)
M179-A48 Anti-GM130 mAb-Alexa Fluor[®] 488 (5G8)
M179-A59 Anti-GM130 mAb-Alexa Fluor[®] 594 (5G8)
M179-A64 Anti-GM130 mAb-Alexa Fluor[®] 647 (5G8)
PM061 Anti-GM130 pAb
PM063 Anti-COX4 pAb
PM064 Anti-Lamin B1 pAb

Kits

8485 Autophagy Ab Sampler Set
PM036-PN Positive control for anti-LC3 antibody

WB: Western blotting
IP: Immunoprecipitation
IC: Immunocytochemistry
IHC: Immunohistochemistry
FCM: Flow cytometry
EM: Immuno-electron microscopy

Other related antibodies and kits are also available.
Please visit our web site at <http://ruo.mbl.co.jp>