

Supplementary information S1 (table) | **Contribution of individual components of the Beclin 1 interactome to autophagy and apoptosis.**

Protein	Function in autophagy	Function in apoptosis	Ref.
Beclin 1	Essential protein of core complex	No direct implication	1
Ambra 1	Favors Beclin 1/Vps34 interaction by inhibiting binding of BCL-2	Inhibits apoptosis	2
Atg14L	Targets core complex to phagophore.	No direct implication	3
Bad	Disrupts binding to BCL-2-like proteins	Pro-apoptotic BH3-only protein	4
Bif1	Binds Beclin 1 indirectly through UVRAG	Unknown	5
BCL-2	Binds to BH3 domain of Beclin 1	Anti-apoptotic BCL-2 family member	6
BCL-XL	Binds to BH3 domain of Beclin 1	Anti-apoptotic BCL-2 family member	4
Bcl-w	Binds to BH3 domain of Beclin 1	Anti-apoptotic BCL-2 family member	7
Bfl-1	Binds to BH3 domain of Beclin 1	Anti-apoptotic BCL-2 family member	8
Bid	Disrupts binding to BCL-2-like proteins	Pro-apoptotic BH3-only protein	9
Bim EL	Inhibitor tying Beclin 1 to DCP1	Pro-apoptotic BH3-only protein	10
GAPR	Retains Beclin 1 at Golgi apparatus	Unknown	11
IPR3	Inhibitor (interaction via BCL-2)	Activator of lethal Ca ²⁺ fluxes	12
HMGB1	Disrupts binding to BCL-2-like proteins	Liberated from nucleus in dying cells	13
Naf-1	Favors interaction with BCL-2 at ER	Unknown	14
Nlnrp3/4/10	Substrate of autophagy	Inflammasome activation, pyroptosis	15
Noxa	Disrupts binding to BCL-2-like proteins	Pro-apoptotic BH3-only protein	16
Puma	Disrupts binding to BCL-2-like proteins	Pro-apoptotic BH3-only protein	17
Rubicon	Inhibitor of Vps34 lipid kinase activity	Unknown	18
Tab2/3	Inhibitor binding to Beclin 1	Anti-apoptotic through IKK signaling	19
UVRAG	Enhances autophagosome maturation	Inhibits mitochondrial translocation	5
Vmp1	Disrupts binding to BCL-2-like proteins	Unknown	20
Vps15	Essential membrane-targeting protein	No direct implication	21
Vps34	Catalytic subunit of the PI3K	No direct implication	22

Green box denotes pro-autophagy and pro-apoptotic effects; red box denotes anti-autophagy and anti-apoptotic effects.

- Ciechomska, I.A., Goemans, G.C., Skepper, J.N. & Tolkovsky, A.M. Bcl-2 complexed with Beclin-1 maintains full anti-apoptotic function. *Oncogene* **28**, 2128-2141 (2009).
- Fimia, G.M., Corazzari, M., Antonioli, M. & Piacentini, M. Ambra1 at the crossroad between autophagy and cell death. *Oncogene* **32**, 3311-3318 (2013).
- Itakura, E., Kishi, C., Inoue, K. & Mizushima, N. Beclin 1 forms two distinct phosphatidylinositol 3-kinase complexes with mammalian Atg14 and UVRAG. *Mol Biol Cell* **19**, 5360-5372 (2008).
- Maiuri, M.C., *et al.* Functional and physical interaction between Bcl-X(L) and a BH3-like domain in Beclin-1. *Embo J* **26**, 2527-2539 (2007).
- Takahashi, Y., *et al.* Bif-1 interacts with Beclin 1 through UVRAG and regulates autophagy and tumorigenesis. *Nat Cell Biol* **9**, 1142-1151 (2007).
- Pattingre, S., *et al.* Bcl-2 antiapoptotic proteins inhibit Beclin 1-dependent autophagy. *Cell* **122**, 927-939 (2005).
- Erlich, S., *et al.* Differential interactions between Beclin 1 and Bcl-2 family members. *Autophagy* **3**, 561-568 (2007).
- Kathania, M., Raje, C.I., Raje, M., Dutta, R.K. & Majumdar, S. Bfl-1/A1 acts as a negative regulator of autophagy in mycobacteria infected macrophages. *Int J Biochem Cell Biol* **43**, 573-585 (2011).
- Lamparska-Przybysz, M., Gajkowska, B. & Motyl, T. Cathepsins and BID are involved in the molecular switch between apoptosis and autophagy in breast cancer MCF-7 cells exposed to camptothecin. *J Physiol Pharmacol* **56** Suppl 3, 159-179 (2005).
- Abedin, M.J., Wang, D., McDonnell, M.A., Lehmann, U. & Kelekar, A. Autophagy delays apoptotic death in breast cancer cells following DNA damage. *Cell Death Differ* **14**, 500-510 (2007).
- Shoji-Kawata, S., *et al.* Identification of a candidate therapeutic autophagy-inducing peptide. *Nature* **494**, 201-206 (2013). **Identification of a novel pharmacological tool to specifically induce autophagy without activating apoptosis.**
- Vicencio, J.M., Lavandero, S. & Szabadkai, G. Ca²⁺, autophagy and protein degradation: thrown off balance in neurodegenerative disease. *Cell calcium* **47**, 112-121 (2010).
- Tang, D., *et al.* Endogenous HMGB1 regulates autophagy. *J Cell Biol* **190**, 881-892 (2010).
- Chang, N.C., Nguyen, M., Germain, M. & Shore, G.C. Antagonism of Beclin 1-dependent autophagy by BCL-2 at the endoplasmic reticulum requires NAF-1. *Embo J* **29**, 606-618 (2010).
- Jounai, N., *et al.* NLRP4 negatively regulates autophagic processes through an association with beclin 1. *J Immunol* **186**, 1646-1655 (2011).
- Elgendy, M., Sheridan, C., Brumatti, G. & Martin, S.J. Oncogenic Ras-induced expression of Noxa and Beclin-1 promotes autophagic cell death and limits clonogenic survival. *Mol Cell* **42**, 23-35 (2011).
- Yee, K.S., Wilkinson, S., James, J., Ryan, K.M. & Vousden, K.H. PUMA- and Bax-induced autophagy contributes to apoptosis. *Cell Death Differ* **16**, 1135-1145 (2009).
- Sun, Q., *et al.* The RUN domain of rubicon is important for hVps34 binding, lipid kinase inhibition, and autophagy suppression. *J Biol Chem* **286**, 185-191 (2011).
- Criollo, A., *et al.* Inhibition of autophagy by TAB2 and TAB3. *Embo J* **30**, 4908-4920 (2011).
- Molejon, M.I., Ropolo, A., Re, A.L., Boggio, V. & Vaccaro, M.I. The VMP1-Beclin 1 interaction regulates autophagy induction. *Scientific reports* **3**, 1055 (2013).
- Lindmo, K., *et al.* The PI 3-kinase regulator Vps15 is required for autophagic clearance of protein aggregates. *Autophagy* **4**, 500-506 (2008).
- Funderburk, S.F., Wang, Q.J. & Yue, Z. The Beclin 1-VPS34 complex--at the crossroads of autophagy and beyond. *Trends Cell Biol* **20**, 355-362 (2010).