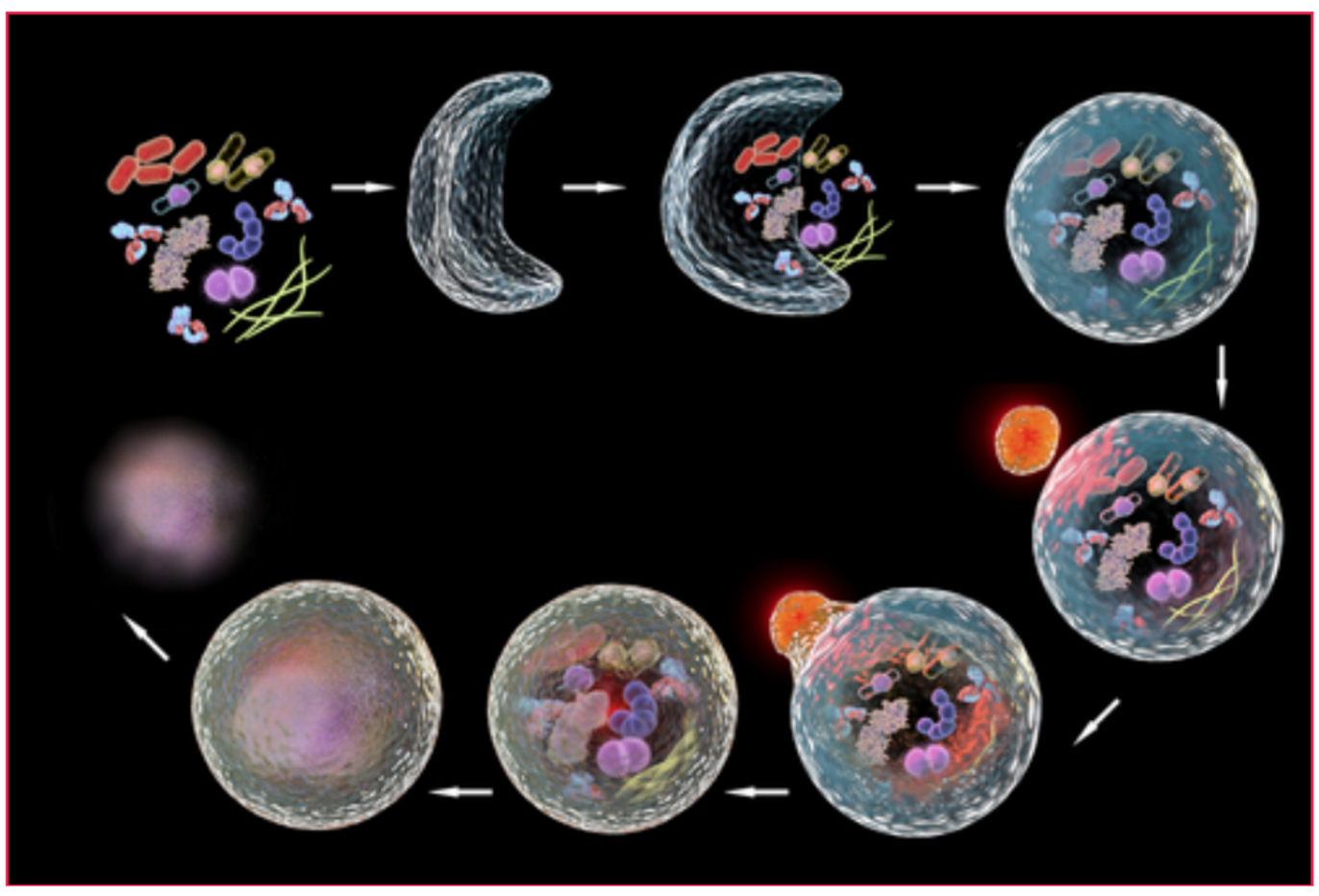
FOCUS BIOMOLECULES

Autophagy Research Tools

Autophagy occurs at a basal level in every cell performing many tasks that enable cell survival. Cancerous cells can also utilize this mechanism to survive the unfavorable microenvironments inherent in early tumor growth.[1,2] Conversely, autophagy can prevent tumorigenesis through removal of potentially dangerous damaged organelles.[3,4] Autophagy is also thought to be an effector of oncogene-induced senescence, an antiproliferative response to oncogene activation.[5,6,7]

Whether you are studying autophagy in cancer, neurodegeneration, or any other research area, look to Focus Biomolecules for high quality and affordable cutting edge autophagy tools.



Depiction of engulfment of cytoplasmic matter by autophagosome, fusion with lysosome, degradation of cytoplasmic matter, and release of digested material

Inducers of Autophagy

- **Dorsomorphin:** Induces autophagy via an AMPK-independent mechanism
- **Itraconazole:** Blocks cholesterol trafficking
- **A-769662:** Induces autophagy via AMPK activation
- **MG-132:** 26S Proteasome inhibitor
- **Rapamycin:** Intiates autophagy via mTOR inhibition
- **Seriniquinone:** Selectively induces autophagy in melanoma cells/Binds to Dermcidin
- **SMER-28:** Induces autophagy via an mTOR-independent mechanism
- **STF-62247:** Specifically induces autophagy in VHL-deficient cells
- **Thapsigargin:** SERCA inhibitor/Induces ER stress
- **Tunicamycin:** Initiates ER stress-induced autophagy

Inhibitors of Autophagy

- **Bafilomycin A1:** Disrupts fusion between autophagosomes and lysosomes
- **Forskolin:** Adenylate cyclase activator
- **Hydroxychloroquine sulfate:** Disrupts fusion between autophagosomes and lysosomes
- **ISO-1:** Blocks MIF-induced autophagy
- **Manzamine A:** Inhibits vacuolar ATPases
- **3-Methyladenine:** Blocks autophagosome formation via PI3K inhibition
- **MHY1485:** Disrupts fusion between autophagosomes and lysosomes
- **Spautin-1:** Promotes degradation of Vps34/PI3K complex via inhibition of USP10/13
- **Vinblastine sulfate:** Inhibits autophagosome maturation
- **Xanthohumol:** Inhibits autophagosome maturation via binding to VCP

View Complete List of Autophagy Tools

If you don't see what you need – lets us know and we can make it for you.

References:

1. White (2015), *The role for autophagy in cancer*; J.Clin.Invest. **125** 42
2. Yang *et al.* (2015), *The role of autophagy induced by tumor microenvironment in different cells and stages of cancer*; Cell & Bioscience **5** 14
3. Mathew *et al.* (2007), *Autophagy suppresses tumor progression by limiting chromosomal instability*; Genes Dev. **21** 1367
4. Jin and White (2008), *Tumor suppression by autophagy through the management of metabolic stress*; Autophagy **4** 563
5. Narita *et al.* (2009), *Autophagy facilitates oncogene-induced senescence*; Autophagy **5** 1046
6. Grasso and Vaccaro (2014), *Macroautophagy and the oncogene-induced senescence*; Front.Endocrinol. 29 Sept.
7. Galluzzi *et al.* (2016), *Autophagy Mediates Tumor Suppression via Cellular Senescence*; Trends in Cell Biology **26** 1

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