

Biochemical Dissection and Reconstitution of Mammalian Autophagy

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Facilitator	:	Prof. Li Min

Abstract

Autophagy (self-eating) is the garbage-disposal system for eukaryotes. In a sense, it is more powerful than the ubiquitin system due to its enormous capacity. In autophagy, the gigantic garbage truck, a double-membrane vesicle termed autophagosome is formed to accommodate bulky cell debris including damaged organelles, large protein aggregates and invading pathogens, and then delivers them to the lysosome for degradation or processing for reuse. Without this cleaning system, mammals are vulnerable to infectious diseases, neurodegenerative diseases, diabetes, muscle degeneration and metabolic disorders. In many cancer cells, autophagy is hijacked to remove toxic drug compounds and essential to maintain tumor cell growth. Given its broad involvement in human diseases, scientists are eager to develop drug candidates to potently and specifically increase or decrease autophagy activity, which will require profound understanding of the biochemical mechanism of autophagy. Prof. Zhong's lab focuses on the mechanism of three key aspects in autophagy; how does the class III PI3K initiate autophagosome biogenesis by producing PI3P on membrane? What kinds of substrates are specifically targeted? How is autophagosome fusion with lysosome achieved?

★★ All are welcome ★★