



Figure 2. Schematic diagram of the macroautophagy (autophagy) machinery. In normal condition, the active mTORC1 suppresses autophagy initiation. Upon stimulation, mTORC1 is inactivated and AMPK is activated, collectively leading to the activation of ULK complex. Besides, TFEB resumes its role in transcription of multiple lysosome- and autophagy-related genes. The active ULK complex then activates the VPS34 complex which is responsible for PI3P production. PI3P recruits its binding proteins to form a pre-autophagosomal structure called phagophore. Phagophore elongation and closure is mediated by two ubiquitin-like conjugation systems: ATG5-ATG12-ATG16L complex formation and the lipidation of LC3. The sealed phagophore is called autophagosome, and autophagosome is eventually fused with lysosome to form autolysosome. The cargos in autolysosome are degraded by lysosomal enzymes, thus the nutrients and metabolites are recycled.