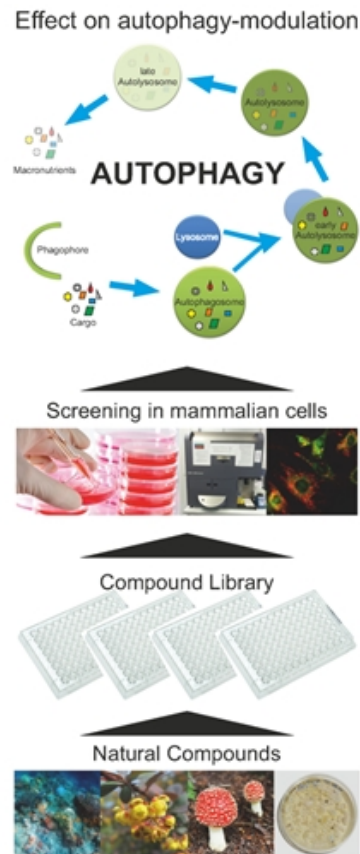


Identification of autophagy-modulating natural products and derivatives for the elimination of therapy-resistant tumor cells



Autophagy represents an intracellular degradation process that mediates the elimination of long-lived proteins and organelles. It is especially activated under stress conditions such as nutrient deprivation, growth factor withdrawal, or pathogen infection. Cancer cells can activate autophagy in order to avoid cell death by nutrient and oxygen deprivation within the tumor environment. In addition, anticancer therapies frequently induce autophagy as a prosurvival response that contributes to treatment resistance. Consequently, drugs that inhibit autophagy are applied in clinical trials in combination with several anticancer drugs to increase their cytotoxic potential. In contrast, it has also been postulated that autophagy is essential for the efficacy of certain anticancer therapies and that excessive autophagy might contribute to tumor cell death. Therefore, the induction of autophagy might help to overcome resistance of cancer cells. Collectively, the major objective of our project is to identify and characterize novel natural compounds that specifically modulate autophagic responses.

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