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Selective autophagy and its association with plant-stress interactions

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Autophagy is a major cellular degradation pathway in eukaryotes. Recent studies have revealed the importance of autophagy in many aspects of plant life, including seedling establishment, plant development, stress resistance, metabolism and reproduction. This is manifested by the dual ability of autophagy to execute bulk degradation under severe environmental conditions, while simultaneously to be highly selective in targeting specific compartments and protein complexes to regulate key cellular processes, even during favorable growth conditions. Delivery of cellular components to the vacuole enables their recycling, affecting the plant metabolome, especially under stress. Recent research in Arabidopsis has further unveiled fundamental mechanistic aspects in autophagy, which may have relevance in non-plant systems. We will present our recent research on the operation of selective autophagy and its potential association with plant-stress interactions.

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