1. Record Nr. UNINA9910136404903321

Autore	Jose L. Crespo
Titolo	Autophagy in plants and algae [[electronic resource] /] / Topic editors Diane C. Bassham and Jose L. Crespo
Pubbl/distr/stampa	Frontiers Media SA, 2015 Lausanne, Switzerland : , : Frontiers Media SA, , 2015 ©2015
Descrizione fisica	1 online resource (102 pages) : illustrations, charts; digital, PDF file(s)
Collana	Frontiers Research Topics
Soggetti	Botany - Autophagy
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Autophagy in plants and algae --Significant role of PB1 and UBA domains in multimerization of Joka2, a selective autophagy cargo receptor from tobacco --Role and regulation of autophagy in heat stress responses of tomato plants --Monitoring protein turnover during phosphate starvation-dependent autophagic degradation using a photoconvertible fluorescent protein aggregate in tobacco BY-2 cells --Degradation of plant peroxisomes by autophagy --Plant peroxisomes are degraded by starvation-induced and constitutive autophagy in tobacco BY-2 suspension cultured-cells --The emerging role of autophagy in peroxisome dynamics and lipid metabolism of phyllosphere microorganisms --Involvement of autophagy in the direct ER to vacuole protein trafficking routein plants --Selective autophagy of non-ubiquitylated targets in plants: looking for cognate receptor/adaptor proteins --When RNA and protein degradation pathways meet --Autophagy-like processes are involved in lipid droplet degradation in Auxenochlorella protothecoides during the heterotrophy-autotrophy transition --Roles of autophagy in male reproductive development in plants --Functions of autophagy in plant carbon and nitrogen metabolism.
Sommario/riassunto	Autophagy (also known as macroautophagy) is an evolutionarily conserved process by which cytoplasmic components are nonselectively

enclosed within a double-membrane vesicle known as the autophagosome and delivered to the vacuole for degradation of toxic components and recycling of needed nutrients. This catabolic process is required for the adequate adaptation and response of the cell, and correspondingly the whole organism, to different types of stress including nutrient starvation or oxidative damage. Autophagy has been extensively investigated in yeasts and mammals but the identification of autophagy-related (ATG) genes in plant and algal genomes together with the characterization of autophagy-deficient mutants in plants have revealed that this process is structurally and functionally conserved in photosynthetic eukaryotes. Recent studies have demonstrated that autophagy is active at a basal level under normal growth in plants and is upregulated during senescence and in response to nutrient limitation, oxidative stress, salt and drought conditions and pathogen attack. Autophagy was initially considered as a non-selective pathway, but numerous observations mainly obtained in yeasts revealed that autophagy can also selectively eliminate specific proteins, protein complexes and organelles. Interestingly, several types of selective autophagy appear to be also conserved in plants, and the degradation of protein aggregates through specific adaptors or the delivery of chloroplast material to the vacuole via autophagy has been reported. This research topic aims to gather recent progress on different aspects of autophagy in plants and algae. We welcome all types of articles including original research, methods, opinions and reviews that provide new insights about the autophagy process and its regulation.