

1. Record Nr.	UNINA9910136390303321
Autore	Richard A. Rachubinski
Titolo	Origin and spatiotemporal dynamics of the peroxisomal endomembrane system
Pubbl/distr/stampa	Frontiers Media SA, 2015
Descrizione fisica	1 electronic resource (148 p.)
Collana	Frontiers Research Topics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Sommario/riassunto	<p>The peroxisome is an organelle with essential roles in lipid metabolism, maintenance of reactive oxygen species homeostasis, and anaplerotic replenishment of tricarboxylic acid cycle intermediates destined for mitochondria. Peroxisomes constitute a dynamic endomembrane system. The homeostatic state of this system is upheld via two pathways for assembling and maintaining the diverse peroxisomal compartments constituting it; the relative contribution of each pathway to preserving such system may vary in different organisms and under various physiological conditions. One pathway begins with the targeting of certain peroxisomal membrane proteins to an endoplasmic reticulum template and their exit from the template via pre-peroxisomal carriers; these carriers mature into metabolically active peroxisomes containing the entire complement of membrane and matrix proteins. Another pathway operates via growth and maturation of pre-existing peroxisomal precursors that do not originate from the endoplasmic reticulum; mature peroxisomes proliferate by undergoing fission. Recent studies have uncovered new roles for the peroxisomal endomembrane system in orchestrating important developmental decisions and defining organismal longevity. This Frontiers Special Topic Issue is focused on the advances in our understanding of how evolutionarily distant organisms coordinate the formation, maturation, proliferation, maintenance, inheritance and quality control of the peroxisomal endomembrane system and how peroxisomal</p>

endomembranes communicate with other cellular compartments to orchestrate complex biological processes and various developmental programs from inside the cell.

---