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Nota di contenuto	Part I: Physiological Functions of Endo-lysosomal Cation Channels -- NAADP-Mediated Ca <sup>2+</sup> Signalling -- NAADP-Dependent TPC Current -- NAADP-Evoked Ca <sup>2+</sup> Signaling: The DUOX2–HN1L/JPT2–Ryanodine Receptor 1 Axis -- TPC Functions in the Immune System -- Lysosomal Ion Channels and Lysosome–1 Organelle Interactions -- TRPML1 and TFEB, an Intimate Affair -- Lysosomal Potassium Channels -- Part II Structure and Composition of TPC and TRPML Channels -- Structure and Function of Plant and Mammalian TPC Channels -- A Structural Overview of TRPML1 and the TRPML Family -- Endo-Lysosomal Two-Pore Channels and Their Protein Partners -- Part III: Tools and Methods to Characterize Endolysosomal Cation Channels -- Electrophysiological Techniques on the Study of Endolysosomal Ion Channels -- The Plant Vacuole as Heterologous System to Characterize the Functional Properties of TPC Channels -- Expanding the Toolbox: Novel Modulators of Endolysosomal Cation Channels -- Characterization of Endo-Lysosomal Cation Channels Using Calcium Imaging.

## Sommario/riassunto

This book covers the molecular structures and the cellular and *in vivo* function of endosomes and lysosomes, i.e. intracellular vesicles which are involved in many cellular processes such as endocytosis, intracellular trafficking, degradation of material from inside (e.g. autophagy) and outside the cell as well as exocytosis. Membranes of endolysosomal organelles contain an amazing number and diversity of ion channels. These ion channels are the topic of the present book that focusses on describing the structure, the biophysical properties, physiological functions of endolysosomal ion channels at the molecular, cellular and *in vivo* level. .

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