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ISBN	3-030-53202-X
Edizione	[1st ed. 2021.]
Descrizione fisica	1 online resource (LXIII, 339 p. 135 illus., 81 illus. in color.)
Disciplina	575.7
Soggetti	Vascular system of plants Plants - Development
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Introduction -- Structure, Development and Patterns of Primary, Secondary and Regenerative Vascular Tissues -- The Hormonal Signals that Regulate Plant Vascular Differentiation -- Importance of NO ₃ - and PO ₄ - for Development, Differentiation and Competition -- Phloem and Xylem Differentiation -- Apical Dominance and Vascularization -- Leaf Development and Vascular Differentiation -- Flower Biology and Vascular Differentiation -- Can a Differentiating Vessel Induce Lateral Root Initiation? -- Vascular Regeneration and Grafting -- Regulation of Cambium Activity -- Regulation of Juvenile-Adult Transition and Rejuvenation -- The Control of Tracheid Size, Vessel Widening and Density along the Plant Axis -- Circular Vascular Tissues, Vessel Endings and Tracheids in Organ Junctions -- Ray Differentiation -- the Radial Pathways -- Environmental Adaptation of Vascular Tissues -- Resin Glands and Traumatic Duct Formation in Conifers -- Hormonal Control of Reaction Wood Formation -- Hormonal Control of Wood Evolution -- How Vascular Differentiation in Hosts Is Regulated by Parasitic Plants and Gall-Inducing Insects -- Cancer and Vascular Differentiation.
Sommario/riassunto	The book is intended as a guide for molecular biology students, equipping them to successfully study plants. It pursues a holistic approach, viewing the whole plant as an integrated operating organism, and is written in a straightforward manner, making it appealing to

anyone interested in plants. Further, it reflects the latest findings for scientists and students in the fields of plant sciences, biology, agriculture, forestry, ecology, vascular medicine and cancer, discussing e.g. how hormonal signals induce and regulate simple and complex patterns in plants vascular tissues, their adaptation and evolution. • written by a world-renowned expert who has worked in the field for 50 years • covers the field from the initial studies conducted more than a century ago up to recent studies with up-to-date explanations • describes in details the structure, development, physiology and basic molecular biology of plants' vascular tissues, their function, regeneration and environmental adaptation • explores the controlling mechanisms of plant vascular differentiation by continuously moving hormonal signals and their precursors • discusses the regulation of stem cells and cambium, control of gradients in vascular cell size along the plant, juvenile-adult transition and rejuvenation, grafting, mechanisms of recovery from bending by reaction wood, evolution of vessels and fibers from tracheids, regulation of ring-porous wood evolution, protecting mechanisms against insects and pathogens, parasitism, plant cancer, and more • helps readers understand the scope and breadth of plant vascular systems in 20 detailed, high-quality chapters • includes a wealth of outstanding original color photographs and illustrations documenting the formation of vascular tissues • provides an in-depth understanding of plant biology by studying their vascular tissues.
