

From the cells of aquatic algae to the majestic redwoods towering 100 metres above the California coast, the history of plant evolution has been one of increasing complexity. The underlying rationale for this book is to answer the question: How, when land plant embryos at a few-celled stage are essentially comparable, do plants achieve such radically different adult phenotypes, from mosses to tree-ferns, and grasses to oak trees?

The Molecular Organography of Plants chronicles the origin, and importance, of the complex plant organs that have allowed plants to shape the earth's biosphere, and seeks to explain why, and how, the genetic mechanisms governing these developmental trajectories have diverged so much. It provides a detailed account of the organs produced by land plants (stems, roots, leaves, seeds, flowers) into which is incorporated what is rapidly becoming known of the molecular mechanisms responsible. Plant organs are therefore discussed in the context of the evolution of development ("evo-devo"), and their basis in molecular developmental genetics is described. The result is a novel synthesis of classical morphology and molecular developmental biology that takes a broad look at the evolution of plant form.

This advanced textbook is suitable for senior undergraduate and graduate level students taking courses in plant physiology, molecular biology, systematics, genetics, development, and palaeobotany. It will also be of interest and use to a broader audience of plant scientists seeking an authoritative overview of the emerging field of "evo-devo".

Cover illustrations: (foreground) *Equisetum* gametophyte with young embryo (after Hofmeister); (background) Prophase © Scott Russell.

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