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The Transition from Seed to Seedling

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The transition from a growth-arrested seed to a germinating seed and then to a seedling is a crucial developmental step, dramatically affecting plant growth and viability. Before plants enter the vegetative phase of their ontogenesis, massive rearrangements of signaling pathways and switching of gene expression programs are required. It results in the suppression of the genes controlling seed maturation and the activation of those involved in regulating vegetative growth. These events are governed by the hormonal balance, primarily the abscisic acid and gibberellins, although other hormones are also involved.

This book compiled the review and research papers published during the 2021–2022 biennium in the "Plant Development and Morphogenesis" section. The selection of papers covers a topic related to the most recent advances in the molecular mechanisms of metabolic switches during the seed-to-seedling transition and the relationship between seed longevity and seedling viability. It can help understand the complex regulatory mechanisms underlying the seedling establishment and facilitate the breeding of plants more tolerant to abiotic stresses.

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