

# Arabidopsis Protocols

SECOND EDITION

Edited by

**Julio Salinas***Dept. of Biotechnology, Instituto Nacional de Investigacion y Tecnología Agraria y Alimentaria (INIA), Madrid, Spain***Jose J. Sanchez-Serrano***Dept. de Genética Molecular de Plantas, Centro Nacional de Biotecnología-CSIC,  
Campus de Cantoblanco, Madrid, Spain***From Reviews of the First Edition...**

"...recommend[ed]...provides a set of enduring methods and is comprehensive enough for instant use in the lab." —**TRENDS IN PLANT SCIENCE**

"...a 'must have' for every laboratory involved in Arabidopsis." —**QUARTERLY REVIEW OF BIOLOGY**

"...a 'must' for those labs working with not just Arabidopsis specifically but plants in general." —**MICROBIOLOGY TODAY**

"...a must for anybody moving into the Arabidopsis field and setting up a new lab...extremely useful." —**GENETICAL RESEARCH**

Emulating the much-praised first edition of *Arabidopsis Protocols*, leading scientists have generated an up-to-date work that reflects recent advances in plant biology, the completion of the *Arabidopsis* genome sequence—essential for studying plant function—and the development of whole systems approaches that allow global analysis of gene expression, as well as protein and metabolite dynamics. The authors have included nearly all techniques developed in *Arabidopsis*, others recently adapted from more traditional work in crop species, and the latest using *Arabidopsis* as a model system. Highlights include the most recent methods—transcriptomics, proteomics, and metabolomics—and their novel applications (phosphoproteomics, DNA microarray-based genotyping, high throughput metabolite profiling, and single-cell RNA). Traditional protocols from the agricultural sciences and others developed in crop species (grafting and chloroplast transformation) have been adapted to exploit the advantages of the *Arabidopsis* model. The protocols themselves follow the successful *Methods in Molecular Biology*™ series format, each offering step-by-step laboratory instructions, an introduction outlining the principles behind the technique, lists of the necessary equipment and reagents, and tips on troubleshooting and avoiding known pitfalls.

Indispensable and highly practical, *Arabidopsis Protocols, Second Edition* offers both novice and experienced plant biologists cutting-edge tools to explore new scenarios and gain an understanding of how this complex, multicellular organism works, how it copes with a sessile life style, and how these strategies compare with those developed in other organisms.

**FEATURES**

- Readily reproducible methods that use the latest molecular techniques
- Utilization of the completed *Arabidopsis* genome to study plant function
- Global analysis of gene expression and protein and metabolite dynamics
- DNA microarray-based genotyping and single-cell RNA characterization
- High-throughput metabolite profiling

