
Preface

The last 10 years have witnessed an explosion in our understanding of plant hormones. The often vague models of hormone action developed over decades have been replaced in short order by detailed molecular models that include receptors and in many cases downstream signal transduction components. Given the rapid progress in understanding the mechanism of action of plant growth regulators, a technical review of hormone methodology is timely. Our book focuses on genetic, biochemical, analytical and chemical biological approaches for understanding and dissecting plant hormone action. The greatest strides in plant hormone biology have come, by and large, from the use of genetic methods to identify receptors and we dedicate a chapter to general genetic methods of analysis using the model system *Arabidopsis thaliana*. A cluster of chapters focuses on biochemical methods for documenting interactions between hormones and their receptors. The importance of these assays is tremendous; receptor–ligand interactions in animal model systems have been the cornerstones of pharmacological and medicinal chemical assays that have enabled identification of selective and non-selective agonists and antagonists that can be used to further probe and dissect questions of receptor function. This is likely to be a major new frontier in plant hormone research. Given these recent assays for plant hormone receptors, the time is ripe to investigate chemical biological methods for exploiting these assays to develop an understanding the mechanism of action of synthetic plant growth regulators; in this context, we offer methods for conducting chemical genetic screens to identify new growth regulators in *Arabidopsis* and other plant species. Lastly, the last few years have also seen impressive growth in analytical methods for measuring plant hormones; we offer two chapters on both LC-MS and GC-MS based methods for measuring endogenous plant hormone levels. Collectively, these protocols should empower plant hormone biologists to dissect the ext generation of questions in plant hormone biology and signal transduction.

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