
Preface

Plant Systems Biology: Shooting a Moving Target

Plant systems biology is a fairly new art form. Unsurprisingly, its practitioners come in a variety of different flavors, and accordingly, there exist a great many conflicting definitions of what this art form really is (although this probably is true of any art form). Researchers have been entering this field from all walks of scientific life – there are classical plant physiologists by training, wet bench gene expression biologists like myself, cell biologists, mathematicians, statisticians, bioinformaticians, software engineers, and other more esoteric types ranging all the way to astrophysicists, etc.

The eclectic nature of this proverbial melting pot is also reflected in the content of this volume, which contains sections covering topics from systems biology of plant gene expression to analysis of networks, pathways, specific statistical issues and novel computational tools, imaging-based tools as well as chemical genetic, metabolomic, and integrative methods that cannot be easily pigeonholed.

While the definition of what plant systems biology really is may still be evolving, its key leading figures have clearly emerged and who they are is largely beyond dispute. Indeed, it is quite obvious who is driving the field forward and paving the way for others who follow in their wake and broaden the path. It is for that reason that the foreword to this volume is written by Philip Benfey, whose pioneering studies in the field of systems biology of gene expression have received wide recognition far beyond the plant community.

While the natural evolution of the field has been rapid and successful, it has become quite obvious that the time has come for setting up dedicated training programs in order to sustain this remarkable progress. This is already happening of course, in the form of IGERT and other training grants, iPlant initiative, etc., but additional modalities are needed. It is also the hope of the editor that this volume will make a contribution to achieving this goal as well.

In closing, I would like to acknowledge the contributions of the members of my own group over the years, and particularly that of Julia Chekanova, as well as the expert editorial assistance of Teresa Crew, without whom this volume would never have seen the light of day. Gene expression studies in my lab have been supported by grants from NSF, USDA, BARD, and NIH.

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