Preface

Cell culture methodologies have become standard procedures in most plant laboratories. Full courses on the subject are taught as part of the curricula of several programs in biological and agronomical sciences. However, the apparent simplicity of cell culture technology should not lead to mistakenly considering it as trivial. It would be very difficult to understand modern plant biotechnology without in vitro cell cultures, and even today, the application of recombinant DNA technology to important crops, such as peppers, is hampered by the poor embryogenic or morphogenetic response of in vitro cultured tissues.

This second edition of *Plant Cell Culture Protocols* follows a similar plot as its predecessor. It also pursues similar goals; that is, to provide an updated step-by-step guide to the most common and applicable techniques and methods for plant tissue and cell culture. A total of 30 chapters, divided into six sections, have been included. Topics selected cover from general methodologies, such as culture induction, growth and viability evaluation, and contamination control, to such highly specialized techniques as chloroplast transformation, passing through the laborious process of protoplast isolation and culture. Most of the protocols are currently used in the research programs of the authors, or represent important parts of business projects aimed at the generation of improved plant materials. Two appendixes have also been included; the first discusses common principles for the formulation of culture media and also lists the composition of the eight most commonly used media formulations. The second appendix compiles a list of useful internet sites for cell culture scientists. A total of more than 100 sites have been selected, based on the quality of the information offered in them, as well as on their user friendliness. We anticipate that some these sites will be included among the reader's favorites (if they aren't already).

We sincerely hope that readers will find this new edition of *Plant Cell Culture Protocols*, which resides in the highly useful Methods in Molecular Biology series, to be a major resource of information for their research projects; this has been its real purpose.

We would like to thank the authors of each chapter for responding to our constant requests for the materials, despite their reckless work schedules. They made it possible for us to carry this job to its completion.

Finally, we should express our profound gratitude to Professor John Walker for his trust in our experience to complete this project. We have certainly enjoyed the opportunity to interact with colleagues from all over the world.

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