Preface

This special issue of *Cytogenetic and Genome Research* is preceded by the volume entitled *Plant Cytogenetics*, also edited by us and published in 2005 (Vol. 109, No. 1–3). The contents of the first issue consisted of 51 articles, a number of which were reviews and others were original papers. Many aspects of plant cytogenetics were covered in that issue but others were underrepresented. When in June 2006 Michael Schmid, Chief Editor of this Journal, invited us to become Guest Editors for a second special issue on plant cytogenetics, we suggested restricting contributions to reviews in order to provide a more general overview of the current knowledge of plant cytogenetics that could be useful for teachers, students and non-specialists in addition to researchers.

We received an excellent reply from colleagues throughout the world, which enlarges remarkably the information contained in the previous issue. The articles in this volume cover chromosome structure, function and evolution, meiosis, and some aspects of cytogenetics related to plant breeding. The first group of articles deals with basic aspects of chromosome organization and the second group with new technologies related to chromosome organization. The chapter on special chromosomes is devoted to the structure, function and evolution of sex chromosomes and B chromosomes. The chapter on meiosis contains reviews of genes and proteins known to be involved in the meiotic process as well as other aspects of chromosome pairing and recombination. Two other articles deal with the implications of chromosome number and repetitive DNA in chromosome evolution. Finally, three articles concern cytogenetic tools related to plant breeding and its implications.

We are very thankful to the authors for having prepared their articles and to all expert reviewers for their excellent assistance. We wish also to thank Michael Schmid for being again confident of our work as well as for his help throughout the editorial process. For us, it has been again a stimulating task developed with pleasure and with the intention of stimulating advances in the field of plant cytogenetics.

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Madrid, January 2008