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# Preface

Probably no single experimental organism has contributed as much to our understanding of the structure, function, and mechanism of transmission of eukaryotic chromosomes as has the fruit fly, *Drosophila melanogaster*. Think of a (cyto)genetics principle and chances are it was discovered (or substantially elaborated) using the fly. Indeed, *Drosophila* experimental biology is so powerful precisely because its foundations are built around the “chromosome problem.” For the very same reason, cytogenetics methods can benefit practically any area of *Drosophila* study.

*Drosophila Cytogenetics Protocols* is a laboratory manual aimed primarily at “entry-level” drosophilists, such as graduate students and postdoctoral researchers who may be unfamiliar with fruit fly chromosomes or their methods of study. This is reflected in the detailed step-by-step protocols, the substantial background material, and extensive references to primary literature. The chapters emphasize specimen preparation, from dissection to mounting (this book might have been called *Fly Smooshing*), and both polytene and mitotic/meiotic chromosomes are covered in depth. Techniques for image acquisition are provided where necessary, but, in general, it is assumed that the user will have a working knowledge of his or her particular microscope, or at least access to someone who does. Seasoned drosophilists will likely also find new and interesting material here.

*Drosophila Cytogenetics Protocols* began as a notion in Dundee, Scotland. There, and later in Cambridge, England, I had the pleasure of working with, and learning from, many talented cytogenetics practitioners, members of David Glover’s cell cycle genetics laboratory. Practical cytogenetics is as much an art as a science, and the revolving-door world of laboratory personnel can result in a loss of critical know-how when a researcher moves on, sometimes leaving new arrivals to flounder. Putting together a collection of detailed cytogenetics protocols therefore seemed a worthwhile endeavor, and five of my former Dundee/Cambridge colleagues kindly wrote chapters for this book. Many other skilled drosophilists also saw value in this project and *Drosophila Cytogenetics Protocols* has benefited enormously from their contributions as well. I thank all the authors for their fine chapters, suggestions about content, and endless patience. I am grateful to David Glover for having given me the opportunity to be part of his vibrant lab, John Walker, the series editor, for his encouragement and advice on book matters, Wendy Kopf, production editor, for sterling stewardship, and members of my family for their interest and support.

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