

METHODS IN MOLECULAR BIOLOGY

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***Drosophila* Oogenesis**

Methods and Protocols

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Preface

Drosophila melanogaster is one of the most powerful model organisms in genetic studies of animal development and behavior. Entire tissues, from egg to adult, have been studied and continue to be the focus of cutting-edge biological research. With the accelerating pace of *Drosophila* genetics, the fruit fly will remain on the center stage for the foreseeable future. In this book we compiled a series of methods that have been developed to specifically address the fly ovary. In particular we aimed to address the relevant needs of both the beginner and expert researcher, as modern molecular methods are combined with genetic techniques.

In the last couple of decades, *Drosophila* oogenesis has received particular attention due in part to the revolutionary advances in imaging RNAs and proteins. Here we begin with updated protocols for preparing the ovary for various imaging techniques (fixed vs. live imaging, fluorescence microscopy vs. electron microscopy, in situ hybridization vs. immunohistochemistry, cellular structures vs. single molecule detection), followed by genetic protocols for generating mutant clones, performing mosaic analysis, and assessing cell death, to name a few. We conclude with chapters addressing methods for performing genome-wide gene expression analysis and bioinformatics for studies of RNA–protein interactions.

We thank all our expert authors for their contribution to this volume and we hope that as part of the collection of this relevant series, our book will be widely received by molecular, cell, and developmental biologists, as well as educators who wish to use this powerful model system in their research or classrooms.

New York, NY, USA
Jamaica, NY, USA

Diana P. Bratu
Gerard P. McNeil

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