

Contents

Part I Oocyte Interactions with Environment

- 1 Exogenous Molecule and Organelle Delivery in Oogenesis 3
Malgorzata Kloc and Jacek Z. Kubiak
- 2 Control of Mammalian Oocyte Development by Interactions with
the Maternal Follicular Environment 17
Hugh Clarke
- 3 Transovarial Transmission of Symbionts in Insects 43
Teresa Szklarzewicz and Anna Michalik

Part II Oocyte Polarity: Molecular and Organellar Aspects and Developmental Consequences

- 4 Acquisition of Oocyte Polarity 71
Mara Clapp and Florence L. Marlow
- 5 The Pole (Germ) Plasm in Insect Oocytes 103
Szczepan M. Bilinski, Mariusz K. Jaglarz, and Wacław Tworzydło
- 6 Multiple Functions of the DEAD-Box Helicase Vasa
in *Drosophila* Oogenesis 127
Mehrnoush Dehghani and Paul Lasko
- 7 The Role of Microtubule Motors in mRNA Localization
and Patterning Within the *Drosophila* Oocyte 149
Chandler H. Goldman and Graydon B. Gonsalvez
- 8 Phosphoinositides and Cell Polarity in the *Drosophila*
Egg Chamber 169
Julie Jouette, Sandra Claret, and Antoine Guichet

9	RNA Localization in the Vertebrate Oocyte: Establishment of Oocyte Polarity and Localized mRNA Assemblages	189
	Denise Oh and Douglas W. Houston	
Part III	Epigenetic, Transcriptional and Translational Regulation in Oocytes	
10	DNA Methyltransferases in Mammalian Oocytes	211
	Fatma Uysal and Saffet Ozturk	
11	Accumulation of Chromatin Remodelling Enzyme and Histone Transcripts in Bovine Oocytes	223
	V. Lodde, A.M. Luciano, F. Franciosi, R. Labrecque, and M.A. Sirard	
12	Translational Regulation in the Mammalian Oocyte	257
	Andrej Susor and Michal Kubelka	
13	Regulation of Translationally Repressed mRNAs in Zebrafish and Mouse Oocytes	297
	Tomoya Kotani, Kaori Maehata, and Natsumi Takei	
14	Switches in Dicer Activity During Oogenesis and Early Development	325
	Mandy Yu Theng Lim and Katsutomo Okamura	
Part IV	Oocyte Specific Functions of Ubiquitous Molecules and Organelles	
15	The Regulation and Function of Cohesin and Condensin in Mammalian Oocytes and Spermatocytes	355
	Jibak Lee	
16	Supply and Demand of Energy in the Oocyte and the Role of Mitochondria	373
	Wilding Martin	
17	Functions of Vitellogenin in Eggs	389
	Hongyan Li and Shicui Zhang	
18	Lipids in Insect Oocytes: From the Storage Pathways to Their Multiple Functions	403
	Leonardo L. Fruttero, Jimena Leyria, and Lilián E. Canavoso	
19	Parthenogenesis in Insects: The Centriole Renaissance	435
	Maria Giovanna Riparbelli, Marco Gottardo, and Giuliano Callaini	

**Part V Maternal Factors: Origin, Evolution and Application
in Genetic Engineering**

20	The Origin and Evolution of Maternal Genes	483
	Antonio Marco	
21	Noninheritable Maternal Factors Useful for Genetic Manipulation in Mammals	495
	Takayuki Sakurai, Takayuki Shindo, and Masahiro Sato	