

Contents

Preface	v
Contributors	ix
Part I Identification and Regulation of Germline Stem Cells in Model Organisms	
1 The Development of Germline Stem Cells in <i>Drosophila</i>	3
David A. Dansereau and Paul Lasko	
2 Analysis of the <i>C. elegans</i> Germline Stem Cell Region.	27
Sarah L. Crittenden and Judith Kimble	
3 Immunohistological Techniques for Studying the <i>Drosophila</i> Male Germline Stem Cell	45
Shree Ram Singh and Steven X. Hou	
4 Genetic Tools Used for Cell Lineage Tracing and Gene Manipulation in <i>Drosophila</i> Germline Stem Cells	61
Wei Liu and Steven X. Hou	
5 Structural Polarity and Dynamics of Male Germline Stem Cells in an Insect (Milkweed Bug <i>Oncopeltus fasciatus</i>).	71
David C. Dorn and August Dorn	
6 High-Resolution Light Microscopic Characterization of Spermatogonia	95
Hélio Chiarini-Garcia and Marvin L. Meistrich	
7 Identification and Characterization of Spermatogonial Subtypes and Their Expansion in Whole Mounts and Tissue Sections from Primate Testes.	109
Jens Ehmecke and Stefan Schlatt	

- 8 Epigenetic Control in Male Germ Cells: A Transillumination-Assisted Microdissection Method for the Analysis of Developmentally Regulated Events** 119
Durga Prasad Mishra and Paolo Sassone-Corsi
- 9 GDNF Maintains Mouse Spermatogonial Stem Cells In Vivo and In Vitro** 127
Hannu Sariola and Tiina Immonen

Part II In Vitro Culture and Applications of Germline Stem Cells

- 10 Ectopic Grafting of Mammalian Testis Tissue into Mouse Hosts** 139
Ina Dobrinski and Rahul Rath
- 11 Spermatogonial Stem Cell Transplantation, Testicular Function, and Restoration of Male Fertility in Mice** 149
Derek J. McLean
- 12 Isolating Highly Pure Rat Spermatogonial Stem Cells in Culture** 163
F. Kent Hamra, Karen M. Chapman, Zhuoru Wu, and David L. Garbers
- 13 Deriving Mouse Spermatogonial Stem Cell Lines** 181
Ilaria Falciatori, Kate Lillard-Wetherell, Zhuoru Wu, F. Kent Hamra, and David L. Garbers
- 14 Production of Knockdown Rats by Lentiviral Transduction of Embryos with Short Hairpin RNA Transgenes** 193
Christina Tenenhaus Dann and David L. Garbers
- 15 Testicular Germ Cell Tumors in Mice: New Ways to Study a Genetically Complex Trait** 211
Jason D. Heaney and Joseph H. Nadeau
- 16 Study Origin of Germ Cells and Formation of New Primary Follicles in Adult Human and Rat Ovaries** 233
Antonin Bukovsky, Satish K. Gupta, Irma Virant-Klun, Nirmala B. Upadhyaya, Pleas Copas, Stuart E. Van Meter, Marta Svetlikova, Maria E. Ayala, and Roberto Dominguez
- Index** 267