
Contents

Preface	ix
Acknowledgments.....	xi
Editor	xiii
Contributors	xv

Section I Introduction

1. The Case for Developmental Pathology and Developmental Pathologists	3
<i>Brad Bolon</i>	

Section II Fundamentals of Mouse Developmental Biology

2. Essentials of Mouse Genetics and Nomenclature.....	13
<i>Oded Foreman and Brad Bolon</i>	
3. Essential Terminology for Mouse Developmental Pathology Studies.....	27
<i>Brad Bolon and Colin G. Rousseaux</i>	
4. Anatomy and Physiology of the Developing Mouse and Placenta	39
<i>Brad Bolon and Jerrold M. Ward</i>	
5. Teratogens and Teratogenic Mechanisms in Mouse Developmental Pathology	99
<i>Brad Bolon and Colin G. Rousseaux</i>	

Section III Experimental Methods in Mouse Developmental Pathology

6. Principles of Experimental Design for Mouse Developmental Pathology Studies	117
<i>Brad Bolon and Krista M.D. La Perle</i>	
7. Necropsy Sampling and Data Collection for Studying the Anatomy, Histology, and Pathology of Mouse Development.....	133
<i>Susan Newbigging, Jerrold M. Ward, and Brad Bolon</i>	
8. Clinical Pathology Analysis in Developing Mice.....	175
<i>Kelli L. Boyd, Brad Bolon, and Denise I. Bounous</i>	
9. Histotechnological Processing of Developing Mice.....	195
<i>Brad Bolon, Diane Duryea, and Julie F. Foley</i>	
10. Localization of Gene Expression in Developing Mice	211
<i>Jennifer M. Mele and Brad Bolon</i>	

11. Protein Localization in Developing Mice	227
<i>Brad Bolon and Efrain Pacheco</i>	
12. Quantitative Morphological Assessment in Mouse Developmental Pathology Studies	245
<i>Brad Bolon and Stephen Kaufman</i>	
13. Ultrastructural Evaluation of Developing Mice	259
<i>Brad Bolon, Stephen Kaufman, and Richard Montione</i>	
14. Three-Dimensional Imaging in Mouse Developmental Pathology Studies	275
<i>Brad Bolon, Kathleen Gabrielson, Sara Cole, Olga N. Kovbasnjuk, Kimerly A. Powell, and David Weinstein</i>	
 Section IV Analytical Practices for Mouse Developmental Pathology	
15. Pathology of the Developing Mouse from Conception to Weaning	293
<i>Brad Bolon and Vinicius Carreira</i>	
16. Pathology of the Placenta	355
<i>Brad Bolon and Jerrold M. Ward</i>	
17. Mouse Developmental Pathology Assessments in High-Throughput Phenogenomic Facilities	377
<i>Colin McKerlie, Susan Newbigging, and Geoffrey A. Wood</i>	
18. A Statistical Analysis Primer for Mouse Developmental Pathology Studies	405
<i>Brad Bolon and Colin G. Rousseaux</i>	
Appendix: Common Abbreviations in Mouse Developmental Pathology Studies	421
Index	423