# Contents

**Preface** ............................................. v

**Contributors** ........................................... ix

1. Improving Toxicity Screening and Drug Development by Using Genetically Defined Strains ............................................. 1
   *Michael F.W. Festing*

2. The Sophisticated Mouse: Protecting a Precious Reagent ............ 23
   *Michael V. Wiles and Rob A. Taft*

3. Genetically Engineered Mouse Models in Drug Discovery Research .... 37
   *Rosalba Sacca, Sandra J. Engle, Wenning Qin, Jeffrey L. Stock, and John D. McNeish*

4. Engineering the Mouse Genome to Model Human Disease for Drug Discovery .................................................. 55
   *Frank Koentgen, Gabriele Suess, and Dieter Naf*

5. Profiling of Drug Action Using Reporter Mice and Molecular Imaging ............ 79
   *Gianpaolo Rando, Andrea Biserni, Paolo Ciana, and Adriana Maggi*

6. Human FcRn Transgenic Mice for Pharmacokinetic Evaluation of Therapeutic Antibodies ............................................. 93
   *Derry C. Roopenian, Gregory J. Christianson, and Thomas J. Sproule*

7. Development of Novel Major Histocompatibility Complex Class I and Class II-Deficient NOD-SCID IL2R Gamma Chain Knockout Mice for Modeling Human Xenogeneic Graft-Versus-Host Disease .......... 105
   *Steve Pino, Michael A. Brehm, Laurence Corassin-Barberis, Marie King, Bruce Gott, Thomas H. Chase, Jennifer Wagner, Lisa Burzenski, Oded Foreman, Dale L. Greiner, and Leonard D. Shultz*

8. Bridging Mice to Men: Using HLA Transgenic Mice to Enhance the Future Prediction and Prevention of Autoimmune Type 1 Diabetes in Humans . 119
   *David V. Serreze, Marijke Niens, John Kulik, and Teresa P. DiLorenzo*

9. Mouse Models of Type II Diabetes Mellitus in Drug Discovery ......... 135
   *Helene Baribault*

10. Cholesterol Absorption and Metabolism ............................. 157
    *Philip N. Howles*

11. Collagen-Induced Arthritis in Mice .................................. 181
    *Lisette Bevaart, Margriet J. Vervoordeldonk, and Paul P. Tak*

12. Skin Diseases in Laboratory Mice: Approaches to Drug Target Identification and Efficacy Screening ......................... 193
    *John P. Sundberg, Kathleen A. Silva, Caroline McPhee, and Lloyd E. King*
13. Models of Metastasis in Drug Discovery ............................... 215
James E. Talmadge

14. Methods for Evaluating Effects of an Irinotecan + 5-
Fluorouracil/Leucovorin (IFL) Regimen in an Orthotopic
Metastatic Colorectal Cancer Model Utilizing In Vivo Bioluminescence
Imaging ................................................................. 235
David Surguladze, Philipp Steiner, Marie Prewett,
and James R. Tonra

15. CML Mouse Model in Translational Research ....................... 253
Cong Peng and Shaoguang Li

16. Mouse Models for Studying Depression-Like States and Antidepressant Drugs . 267
Carisa L. Bergner, Amanda N. Smolinsky, Peter C. Hart, Brett D.
Dufour, Rupert J. Egan, Justin L. LaPorte, and Allan V. Kalueff

17. Virus-Delivered RNA Interference in Mouse Brain to Study
Addiction-Related Behaviors ............................................. 283
Amy W. Lasek and Nourredine Azouaou

18. Experimental Models of Anxiety for Drug Discovery
and Brain Research ......................................................... 299
Peter C. Hart, Carisa L. Bergner, Amanda N. Smolinsky, Brett D.
Dufour, Rupert J. Egan, Justin L. LaPorte, and Allan V. Kalueff

19. Mouse Models of Neurodegenerative Diseases: Criteria and General Methodology 323
Christopher Janus and Hans Welzl

20. Neuromuscular Disease Models and Analysis .......................... 347
Robert W. Burgess, Gregory A. Cox, and Kevin L. Seburn

21. Murine Model of Cutaneous Infection with Streptococcus pyogenes .......... 395
Eva Medina

22. Murine Model of Pneumococcal Pneumonia ............................. 405
Eva Medina

23. Murine Model of Polymicrobial Septic Peritonitis Using Cecal Ligation
and Puncture (CLP) ....................................................... 411
Eva Medina

Index ............................................................................. 417
Mouse Models for Drug Discovery
Methods and Protocols
Proetzel, G.; Wiles, M.V. (Eds.)
2010, XII, 421 p., Hardcover
ISBN: 978-1-60761-057-1
A product of Humana Press