Contents

1 Introduction: Reminiscing on Models and Modeling .................. 1
Robert B. Denman

Part I  Ex Vivo Models

2 Probing Astrocyte Function in Fragile X Syndrome ................. 15
Shelley Jacobs, Connie Cheng, and Laurie C. Doering

3 Neural Stem Cells ..................................................................... 33
Maija Castrén

4 Fragile X Mental Retardation Protein (FMRP) and the Spinal Sensory System .............................................. 41
Theodore J. Price and Ohannes K. Melemedjian

5 The Role of the Postsynaptic Density in the Pathology of the Fragile X Syndrome ............................................. 61
Stefan Kindler and Hans-Jürgen Kreienkamp

Part II  Non-mouse Eukaryote Models

6 Behavior in a Drosophila Model of Fragile X ......................... 83
Sean M. McBride, Aaron J. Bell, and Thomas A. Jongens

7 Molecular and Genetic Analysis of the Drosophila Model of Fragile X Syndrome ......................................................... 119
Charles R. Tessier and Kendal Broadie
8 Fragile X Mental Retardation Protein and Stem Cells  .......... 157
  Abrar Qurashi, Xuekun Li, and Peng Jin

9 Manipulating the Fragile X Mental Retardation Proteins in the Frog ............................................................... 165
  Marc-Etienne Huot, Nicolas Bisson, Thomas Moss, and Edouard W. Khandjian

10 Exploring the Zebra Finch Taeniopygia guttata as a Novel Animal Model for the Speech–Language Deficit of Fragile X Syndrome ........................................................... 181
  Claudia Winograd and Stephanie Ceman

Part III  Novel Mouse Models

11 Neuroendocrine Alterations in the Fragile X Mouse ............... 201
  Abdeslem El Idrissi, Xin Yan, William L’Amoreaux, W. Ted Brown, and Carl Dobkin

12 Taking STEPs Forward to Understand Fragile X Syndrome .... 223
  Susan M. Goebel-Goody and Paul J. Lombroso

13 Fmr-1 as an Offspring Genetic and a Maternal Environmental Factor in Neurodevelopmental Disease ............... 243
  Bojana Zupan and Miklos Toth

14 Mouse Models of the Fragile X Premutation and the Fragile X Associated Tremor/Ataxia Syndrome ............... 255
  Michael R. Hunsaker, Gloria Arque, Robert F. Berman, Rob Willemsen, and Renate K. Hukema

Part IV  The Human Model

15 Clinical Aspects of the Fragile X Syndrome ...................... 273
  W. Ted Brown

16 Fragile X Syndrome: A Psychiatric Perspective .................. 281
  Michael R. Tranfaglia

17 Fragile X Syndrome and Targeted Treatment Trials .............. 297
  Randi Hagerman, Julie Lauterborn, Jacky Au, and Elizabeth Berry-Kravis
Part V  Missing Models

19  Vignettes: Models in Absentia  ........................................ 361
    Robert B. Denman

Index  ................................................................. 385
Modeling Fragile X Syndrome
Denman, R.B. (Ed.)
2012, XII, 392 p., Hardcover
ISBN: 978-3-642-21648-0