Contents

Preface ........................................................................................................... vii
Contributors ................................................................................................. xi

1 From Bedside to Bench: How Clinical Reality Should Instruct
Stroke Modeling ............................................................................................ 1
Pauline Patak and Dirk M. Hermann

2 How to Avoid Bumping into the Translational Roadblock .................. 7
Malcolm Macleod

3 Modeling Focal Cerebral Ischemia in Rodents: Introduction and Overview..... 17
Vincent Prinz and Matthias Endres

4 Focal Cerebral Ischemia in the Mouse and Rat Using the Intraluminal
Suture–Filament Model ............................................................................... 29
Ludmila Belayev, Matthias Endres, and Vincent Prinz

5 Focal Ischemia Models: Middle Cerebral Artery Occlusion Induced
by Electrocoagulation, Occluding Devices, and Endothelin-1 .................. 41
I. Mhairi Macrae

6 Rodent Models of Thromboembolic Stroke .............................................. 55
Cyrille Orset, Benoit Haelewyn, Kilian Vivien, Denis Vivien,
and Alan R. Young

7 Photochemical and Endothelin Models of Focal Brain Ischemia .............. 71
Otto W. Witte

8 Housing in an Enriched Environment: A Tool to Study Functional
Recovery After Experimental Stroke ....................................................... 85
Karsten Ruscher and Tadeusz Wieloch

9 Modeling Risk Factors and Confounding Effects in Stroke .................. 93
Barry McColl, David Howells, Nancy Rothwell, and Adam Denes

10 Effect of Anesthesia in Stroke Models .................................................. 121
Richard J. Traystman

11 Noninvasive Brain Imaging in Small Animal Stroke Models: MRI and PET ...... 139
Anna M. Planas

12 Non-invasive Optical Imaging in Small Animal Models of Stroke ............. 167
Andreas Wunder and Jan Klohs

13 Behavioral Testing in Mouse Models of Stroke .................................... 179
Mustafa Balkaya and Matthias Endres

14 Behavioral Testing in Rodent Models of Stroke ................................... 199
Gerlinde A.S. Metz

15 Histology and Infarct Volume Determination ...................................... 213
Clemens Sommer
16 Ethics of Modeling of Cerebral Ischemia in Small Animals ..................  227  
Ute Lindauer

17 Quality Control and Standard Operating Procedures ......................  239  
Ulrich Dirnagl

18 Statistics in Experimental Stroke Research: From Sample Size  
Calculation to Data Description and Significance Testing ...................  249  
Ulrich Dirnagl

19 Complexities, Confounders, and Challenges in Experimental  
Stroke Research: A Checklist for Researchers and Reviewers .................  263  
Ulrich Dirnagl

Index ...........................................................................................................  279
Rodent Models of Stroke
Dirnagl, U. (Ed.)
2010, XII, 285 p. 49 illus., Hardcover
A product of Humana Press