Contents

Preface ......................................................................................................................... v
Contributors ................................................................................................................. xi

1 Use of the Herpes Simplex Viral Genome to Construct
   Gene Therapy Vectors
   Edward A. Burton, Shaohua Huang, William F. Goins,
   and Joseph C. Glorioso .................................................................................... 1

2 Construction of Multiply Disabled Herpes Simplex Viral
   Vectors for Gene Delivery to the Nervous System
   Caroline E. Lilley and Robert S. Coffin .................................................. 33

3 Improved HSV-1 Amplicon Packaging System Using
   ICP27-Deleted, Oversized HSV-1 BAC DNA
   Yoshinaga Saeki, Xandra O. Breakefield,
   and E. Antonio Chiocca ............................................................................. 51

4 Herpes Simplex Amplicon Vectors
   Charles J. Link, Nicholas N. Vahanian,
   and Suming Wang .......................................................................................... 61

5 Strategies to Adapt Adenoviral Vectors for Targeted Delivery
   Catherine R. O’Riordan, Antonius Song,
   and Julia Lanciotti .......................................................................................... 89

6 Use of Recombinant Adenovirus for Gene Transfer
   into the Rat Brain: Evaluation of Gene Transfer
   Efficiency, Toxicity, and Inflammatory
   and Immune Reactions
   Andres Hurtado-Lorenzo, Anne David, Clare Thomas,
   Maria G. Castro, and Pedro R. Lowenstein ........................................ 113

7 Generation of Adenovirus Vectors Devoid of All Virus Genes
   by Recombination Between Inverted Repeats
   Hartmut Stecher, Cheryl A. Carlson,
   Dmitry M. Shayakhmetov, and André Lieber ......................... 135
8 Packaging Cell Lines for Generating Replication-Defective
and Gutted Adenoviral Vectors
Jeffrey S. Chamberlain, Catherine Barjot,
and Jeannine Scott ......................................................... 153

9 Improving the Transcriptional Regulation of Genes
Delivered by Adenovirus Vectors
Semyon Rubinchik, Jan Woraratanaadharm,
Jennifer Schepp, and Jian-yun Dong .......................... 167

10 Targeted Integration by Adeno-Associated Virus
Matthew D. Weitzman, Samuel M. Young, Jr.,
Toni Cathomen, and Richard Jude Samulski ............. 201

11 Development and Optimization of Adeno-Associated
Virus Vector Transfer into the Central Nervous System
Matthew J. During, Deborah Young, Kristin Baer,
Patricia Lawlor, and Matthias Klugmann .................... 221

12 A Method for Helper Virus-Free Production of
Adeno-Associated Virus Vectors
Roy F. Collaco and James P. Trempe .................................. 237

13 Novel Tools for Production and Purification of Recombinant
Adeno-Associated Viral Vectors
Julian D. Harris, Stuart G. Beattie,
and J. George Dickson .................................................. 255

14 Recombinant Adeno-Associated Viral Vector
Types 4 and 5: Preparation and Application
for CNS Gene Transfer
Beverly L. Davidson and John A. Chiorini .................. 269

15 Trans-Splicing Vectors Expand the Packaging Limits
of Adeno-Associated Virus for Gene
Therapy Applications
Dongsheng Duan, Yongping Yue, Ziyong Yan,
and John F. Engelhardt ................................................. 287

16 Generation of Retroviral Packaging and Producer
Cell Lines for Large-Scale Vector Production
with Improved Safety and Titer
Thomas W. Dubensky, Jr. and Sybille L. Sauter ............ 309
Contents

17 An Ecdysone-Inducible Expression System for Use with Retroviruses
Karen Morse and John Olsen ............................................... 331

18 In Vivo Infection of Mice by Replication-Competent MLV-Based Retroviral Vectors
Estanislao Bachrach, Mogens Duch, Mireia Pelegrin, Hanna Dreja, Finn Skou Pedersen, and Marc Piechaczyk ...................................................... 343

19 Development of Simian Retroviral Vectors for Gene Delivery
Biao Li and Curtis A. Machida .............................................. 353

20 Self-Inactivating Lentiviral Vectors and a Sensitive Cre-loxP Reporter System
Lung-Ji Chang and Anne-Kathrin Zaiss .............................. 367

21 Lentiviral Vectors for Gene Transfer to the Central Nervous System: Applications in Lysosomal Storage Disease Animal Models
Deborah J. Watson and John H. Wolfe ................................ 383

22 A Highly Efficient Gene Delivery System Derived from Feline Immunodeficiency Virus (FIV)
Sybille L. Sauter, Medhi Gasmi, and Thomas W. Dubensky, Jr. ................................................... 405

23 A Multigene Lentiviral Vector System Based on Differential Splicing
Yonghong Zhu and Vicente Planelles ...................................... 433

24 Production of Trans-Lentiviral Vector with Predictable Safety
John C. Kappes, Xiaoyun Wu, and John K. Wakefield ................................................................. 449

25 Human Immunodeficiency Virus Type 1-Based Vectors for Gene Delivery to Human Hematopoietic Stem Cells
Ali Ramezani and Robert G. Hawley .................................... 467

26 Semliki Forest Viral Vectors for Gene Transfer
Jarmo Wahlfors and Richard A. Morgan .................................... 493
Contents

27 Semliki Forest Virus (SFV) Vectors in Neurobiology and Gene Therapy
   Kenneth Lundstrom and Markus U. Ehrengruber .............. 503

28 Semliki Forest Virus Vectors for Large-Scale Production of Recombinant Proteins
   Kenneth Lundstrom ............................................................... 525

29 Development of Foamy Virus Vectors
   George Vassilopoulos, Neil C. Josephson, and Grant Trobridge ....................................................... 545

30 Poxviral/Retroviral Chimeric Vectors Allow Cytoplasmic Production of Transducing Defective Retroviral Particles
   Georg W. Holzer and Falko G. Falkner ............................... 565

Index ................................................................................................. 579
Viral Vectors for Gene Therapy
Methods and Protocols
Machida, C.A. (Ed.)
2003, XVI, 592 p., Hardcover
A product of Humana Press