

CONTENTS

Contributors

vii

1. Regulation of Foamy Viral Transcription and RNA Export	1
Jochen Bodem	
I. Introduction	2
II. Foamy Viral Transcription	5
III. Foamy Viral Transcripts	9
IV. Tas Function	11
V. Modulation of Chromatin Formation and Structure	13
VI. Regulation of FV Polyadenylation	16
VII. Regulation of Foamy Viral RNA Export	20
Acknowledgments	23
References	23
2. Diagnosis and Control of Cereal Viruses in the Middle East	33
Aboul-Ata E. Aboul-Ata, Hamed Mazyad, Ahmad Kamal El-Attar, Ahmed Mohamed Soliman, Ghandi Anfoka, Muhammad Zeidan, Rena Gorovits, Iris Sobol, and Henryk Czosnek	
I. Introduction	34
II. Diagnosis, Detection, and Typing of Cereal Viruses	35
III. Activities of National Plant Protection Services for Sustained Production of Cereal Germplasm	47
IV. Breeding Cereals Resistant to Viruses	48
V. Conclusion	55
Acknowledgments	56
References	56
3. The Roles of Host Factors in Tombusvirus RNA Recombination	63
Peter D. Nagy	
I. Introduction	64
II. Identification of Host Components Affecting TBSV Recombination Based on Genome-wide Screens in Yeast	66
III. Functions of Host Proteins in TBSV RNA Recombination	72

IV. The Combined Roles of Environmental and Host Factors in TBSV RNA Recombination	77
V. Summary and Outlook	79
Acknowledgments	79
References	79

4. Coronavirus Pathogenesis **85**

Susan R. Weiss and Julian L. Leibowitz

I. Introduction	86
II. Genome and Virion	87
III. Coronavirus-Induced Diseases	89
IV. Coronavirus Reverse Genetics	99
V. Structural Proteins	107
VI. Replicase Proteins	123
VII. MHV Accessory Proteins	135
VIII. SARS Accessory Proteins	137
IX. Conclusions and Future Directions	139
Acknowledgments	140
References	140

5. Human Immunodeficiency Virus Viral Protein R as an Extracellular Protein in Neuropathogenesis **165**

Adriano Ferrucci, Michael R. Nonnemacher, and Brian Wigdahl

I. Introduction	166
II. Extracellular Vpr: Active Secretion or Nonspecific Release?	167
III. Extracellular Presence of Other HIV-1 Proteins	171
IV. Source of Extracellular Vpr in the Brain	172
V. Impact of Extracellular Vpr on Cells in the Periphery	175
VI. Effects of Extracellular Vpr on Neurons	180
VII. Effects of Extracellular Vpr on Astrocytes	184
VIII. Conclusion	188
Acknowledgments	191
References	191

Index	201
Color plate section at the end of the book	