

CONTENTS

<i>Contributors</i>	<i>ix</i>
<i>Preface</i>	<i>xi</i>
1. The Epigenetic Basis of Memory Formation and Storage	1
Timothy J. Jarome, Jasmyne S. Thomas, and Farah D. Lubin	
1. Introduction to the Neurobiology of Learning and Memory	2
2. Epigenetic Mechanisms of Memory Consolidation	5
3. Epigenetic Mechanisms of Memory Reconsolidation	14
4. Epigenetic Mechanisms of Memory Extinction	19
5. Future Directions and Conclusions	20
Acknowledgments	24
References	24
2. Epigenetics in Posttraumatic Stress Disorder	29
Carina Rampp, Elisabeth B. Binder, and Nadine Provençal	
1. Introduction	30
2. Epigenetic Evidences in PTSD	32
3. Epigenetic Mechanisms in Gene by Environment Interactions in PTSD	40
4. Conclusions	42
References	43
3. Histone-Mediated Epigenetics in Addiction	51
Leah N. Hitchcock and K. Matthew Lattal	
1. Introduction	52
2. General Overview of Histone-Mediated Epigenetics	53
3. Learning Processes Involved in the Development of Addiction	53
4. Histone-Mediated Epigenetic Mechanisms	56
5. Histone-Mediated Actions in Drug Addiction	63
6. Debates and Considerations	73
7. Considerations for Histone-Mediated Treatment of Addiction	78
Acknowledgments	79
References	79

4. Modeling the Molecular Epigenetic Profile of Psychosis in Prenatally Stressed Mice	89
Alessandro Guidotti, Erbo Dong, Patricia Tueting, and Dennis R. Grayson	
1. The Epigenetic Hypothesis of Psychosis	90
2. Prenatal or Early-Life Stress and Impaired Epigenetic Profile	94
3. The Epigenetic Modifications of GABAergic and Glutamatergic Genes Induced by Prenatal Stress in Mice Are Also Detected in SZ and BP Disorder Patients	95
4. PRS Mice Are a Promising Model for Studies of the Natural Course of SZ and BP Disorders	96
Acknowledgment	98
References	98
5. Epigenetics of Depression	103
Sermasak Lolak, Pim Suwannarat, and Robert H. Lipsky	
1. Introduction	104
2. Genetics of Major Depression	113
3. Epigenetics of Major Depression	118
Acknowledgments and Disclosures	130
References	130
6. Epigenetic Factors in Intellectual Disability: The Rubinstein-Taybi Syndrome as a Paradigm of Neurodevelopmental Disorder with Epigenetic Origin	139
Jose P. Lopez-Atalaya, Luis M. Valor, and Angel Barco	
1. Intellectual Disability and Chromatin-Modifying Enzymes	140
2. Molecular Genetics of RSTS	144
3. Lessons from Mouse Models	151
4. From Mouse Models to Patients: Therapy Prospects	161
5. Standing Questions and Controversies in RSTS Research	164
6. Concluding Remarks	166
Acknowledgments	167
References	167
7. The Intergenerational Effects of Early Adversity	177
Janina Galler and Danielle Galler Rabinowitz	
1. Introduction	177
2. Intergenerational Studies of Malnutrition: Human	178

3. Long-Term and Intergenerational Effects of Postnatal Malnutrition: The Barbados Nutrition Study	180
4. Intergenerational Studies of Malnutrition: Animal Studies	183
5. Intergenerational Studies of Early Adversity and Trauma: Human and Animal Studies	186
6. Other Intergenerational Studies: Chemical Exposures	188
7. Intergenerational Transmission: Epigenetic Mechanisms	189
8. Conclusion	192
Acknowledgments	192
References	192
8. The Future of Neuroepigenetics in the Human Brain	199
Amanda Mitchell, Panos Roussos, Cyril Peter, Nadejda Tsankova, and Schahram Akbarian	
1. Introduction	200
2. Challenges for Epigenetic Approaches in the (Human) Brain	203
3. Evidence and Debate	210
4. Synopsis and Outlook	216
Conflict of Interest	219
Acknowledgment	219
References	219
Index	229