

Contents

Preface	IX
Volume 1	
Part I Molecular Cell Biology	1
1 RNA Regulation in Apoptosis	3
<i>Christopher von Roretz and Imed-Eddine Gallouzi</i>	
2 Bacterial <i>trans</i>-Translation: From Functions to Applications	47
<i>Emmanuel Giudice and Reynald Gillet</i>	
3 RNA-mediated Control of Bacterial Gene Expression: Role of Regulatory non-Coding RNAs	81
<i>Pierre Mandin, Alejandro Toledo-Arana, Aymeric Fouquier d'Hérouel and Francis Repoila</i>	
4 Functions and Applications of RNA-Guided CRISPR-Cas Immune Systems	117
<i>Rodolphe Barrangou and Philippe Horvath</i>	
5 RNA Regulation in Myogenesis	141
<i>Andrie Koutsoulidou, Nikolaos P. Mastroyiannopoulos and Leonidas A. Phylactou</i>	
6 Regulation of Animal Gene Expression by Ingested Plant Small RNAs	169
<i>Xi Chen, Lin Zhang and Chen-Yu Zhang</i>	
7 RNA Interference in Animals	185
<i>Mikiko C. Siomi</i>	
8 To Translate or Degrade: Cytoplasmic mRNA Decision Mechanisms	211
<i>Daniel Beisang and Paul R. Bohjanen</i>	

9 RNA Modification	237
<i>Yuri Motorin and Bruno Charpentier</i>	
10 Regulation of Gene Expression	285
<i>Anil Kumar, Sarika Garg and Neha Garg</i>	
11 RNA Silencing in Plants	345
<i>Charles W. Melnyk and C. Jake Harris</i>	
12 mRNA Stability	391
<i>Ashley T. Neff, Carol J. Wilusz and Jeffrey Wilusz</i>	
13 Visualization of RNA and RNA Interactions in Cells	417
<i>Natalia E. Broude</i>	
14 RNA as a Regulator of Chromatin Structure	437
<i>Yota Murakami</i>	
15 Intracellular RNA Localization and Localized Translation	471
<i>Florence Besse</i>	
16 tRNA Subcellular Dynamics	513
<i>Tohru Yoshihisa</i>	
Volume 2	
Part II Methods for Analysis and Manipulation of RNA-mediated Regulation	545
17 RNA Methodologies	547
<i>Robert E. Farrell, Jr.</i>	
18 Bacterial Vectors for RNAi Delivery to Cancer Cells	585
<i>Hermann Lage</i>	
19 RNAi Screening and Assays	605
<i>Marie Lundbæk and Pål Sætrom</i>	
Part III Medical Applications	631
20 Translation Regulation by microRNAs in Acute Leukemia	633
<i>Christos K. Kontos, Diamantina Vasilatou, Sotirios G. Papageorgiou and Andreas Scorilas</i>	
21 Cancer Stem Cells	663
<i>Mei Zhang and Jeffrey M. Rosen</i>	
22 RNAi Synthetic Logic Circuits for Sensing, Information Processing, and Actuation	687
<i>Zhen Xie, Liliana Wroblewska and Ron Weiss</i>	

23 Emerging Clinical Applications and Pharmacology of RNA	711
<i>Sailen Barik and Vira Bitko</i>	
24 RNAi to Treat Chronic Hepatitis C Infection	751
<i>Usman Ali Ashfaq, Saba Khaliq and Shah Jahan</i>	
25 RNAi Gene Therapy to Combat HIV-1 Infection	781
<i>Pierre Corbeau</i>	
26 Virus-Encoded microRNAs	807
<i>Lee Tuddenham and Sébastien Pfeffer</i>	
Index	849