

RNA Towards Medicine

Contributors

A. Adler, H. Akashi, J. Barciszewski, B. Berkhout, R. Czaja, A.K. Deisingh, V.R. Dondeti, C. Ehresmann, A.D. Ellington, G.C. Fanning, P. Fechter, T. Geissmann, A.M. Gewirtz, J. Glöckler, H.U. Göringer, T. Greiner-Stöffele, J. Haasnoot, U. Hahn, M. Homann, E. Huntzinger, M. Janitz, S. Kainz, A. Kalota, S. Kauppinen, L.A. Kirsebom, J. Kjems, J. Kurreck, H. Lehrach, M. Lützelberger, S. Matsumoto, M. Menger, N.E. Mikkelsen, M. Milovnikova, N. Miyano-Kurosaki, K.V. Morris, R. Narayanaswamy, E. Nielsen, M. Possedko, A. Rich, M. Rimmele, P. Romby, J.J. Rossi, S. Schubert, M. Sioud, M. Sprinzl, G. Symonds, M. Szymański, K. Taira, H. Takaku, H. Ulrich, D. Vanhecke, B. Vester, A. Virtanen, C.S. Voertler, J. Wengel, M. Zacharias

Editors

Volker Erdmann, Jürgen Brosius and Jan Barciszewski



Springer

List of Contents

Why RNA and DNA Have Different Structures	1
<i>A. Rich</i>	
Regulatory RNAs as Mediators of Virulence Gene Expression in Bacteria	9
<i>T. Geissmann, M. Possedko, E. Huntzinger, P. Fechter, C. Ehresmann, P. Romby</i>	
Regulatory RNAs in Mammals	45
<i>M. Szymański, J. Barciszewski</i>	
Aminoglycoside Interactions with RNAs and Nucleases	73
<i>L.A. Kirsebom, A. Virtanen, N.E. Mikkelsen</i>	
High-Throughput RNA Interference in Functional Genomics	97
<i>M. Janitz, D. Vanhecke, H. Lehrach</i>	
Antiviral Applications of RNAi	105
<i>K. V. Morris, J.J. Rossi</i>	
RNA Interference: Its Use as Antiviral Therapy	117
<i>J. Haasnoot, B. Berkhout</i>	
Gene Silencing of Virus Replication by RNA Interference	151
<i>N. Miyano-Kurosaki, H. Takaku</i>	
Progress in the Development of Nucleic Acid Therapeutics	173
<i>A. Kalota, V.R. Dondeti, A.M. Gewirtz</i>	
Screening and Determination of Gene Function Using Randomized Ribozyme and siRNA Libraries	197
<i>S. Matsumoto, H. Akashi, K. Taira</i>	
Ribozymes and siRNAs: From Structure to Preclinical Applications	223
<i>M. Sioud</i>	
Strategies to Identify Potential Therapeutic Target Sites in RNA	243
<i>M. Lützelberger, J. Kjems</i>	

Oligonucleotide-Based Antiviral Strategies	261
<i>S. Schubert, J. Kurreck</i>	
Gene-Expressed RNA as a Therapeutic: Issues to Consider, Using Ribozymes and Small Hairpin RNA as Specific Examples	289
<i>G. C. Fanning, G. Symonds</i>	
RNA Aptamers: From Basic Science Towards Therapy	305
<i>H. Ulrich</i>	
RNA Aptamers Directed Against Oligosaccharides	327
<i>M. Sprinzl, M. Milovnikova, C. S. Voertler</i>	
Aptamer-Based Biosensors: Biomedical Applications	341
<i>A. K. Deisingh</i>	
Application of Aptamers in Therapeutics and for Small-Molecule Detection	359
<i>M. Menger, J. Glökler, M. Rimmele</i>	
RNA Aptamers as Potential Pharmaceuticals Against Infections with African Trypanosomes	375
<i>H. U. Göringer, M. Homann, M. Zacharias, A. Adler</i>	
RNA Targeting Using Peptide Nucleic Acid	395
<i>E. Nielsen</i>	
Locked Nucleic Acid: High-Affinity Targeting of Complementary RNA for RNomics	405
<i>S. Kauppinen, B. Vester, J. Wengel</i>	
Engineering RNA-Based Circuits	423
<i>R. Narayanaswamy, A. D. Ellington</i>	
Selection of RNase-Resistant RNAs	447
<i>S. Kainz, R. Czaja, T. Greiner-Stöffele, U. Hahn</i>	
Subject Index	457