
Contents

<i>Preface</i>	<i>v</i>
<i>Contributors</i>	<i>ix</i>
1 Computational Design of RNA Libraries for In Vitro Selection of Aptamers	1
<i>Yaroslav G. Chushak, Jennifer A. Martin, Jorge L. Chávez, Nancy Kelley-Loughnane, and Morley O. Stone</i>	
2 In Vitro Selection of RNA Aptamers for a Small-Molecule Dye	17
<i>Asako Murata and Shin-ichi Sato</i>	
3 Development of Photoswitchable RNA Aptamer–Ligand Complexes	29
<i>Gosuke Hayashi and Kazuhiko Nakatani</i>	
4 Identification of RNA Aptamers Against Recombinant Proteins with a Hexa-Histidine Tag	41
<i>Shoji Ohuchi</i>	
5 Artificial Riboswitch Selection: A FACS-Based Approach	57
<i>Zohaib Ghazi, Casey C. Fowler, and Yingfu Li</i>	
6 FRET-Based Optical Assay for Selection of Artificial Riboswitches	77
<i>Svetlana V. Harbaugh, Molly E. Chapleau, Yaroslav G. Chushak, Morley O. Stone, and Nancy Kelley-Loughnane</i>	
7 Portable Two-Way Riboswitches: Design and Engineering	93
<i>Ye Jin and Jian-Dong Huang</i>	
8 Generation of Orthogonally Selective Bacterial Riboswitches by Targeted Mutagenesis and In Vivo Screening	107
<i>Helen A. Vincent, Christopher J. Robinson, Ming-Cheng Wu, Neil Dixon, and Jason Micklefield</i>	
9 Dual Genetic Selection of Synthetic Riboswitches in <i>Escherichia coli</i>	131
<i>Yoko Nomura and Yohei Yokobayashi</i>	
10 Nucleotide Kinase-Based Selection System for Genetic Switches	141
<i>Kobei Ike and Daisuke Umeno</i>	
11 Measuring Riboswitch Activity In Vitro and in Artificial Cells with Purified Transcription–Translation Machinery	153
<i>Laura Martini and Sheref S. Mansy</i>	
12 Rational Design of Artificial ON-Riboswitches	165
<i>Atsushi Ogawa</i>	
13 Engineering Protein-Responsive mRNA Switch in Mammalian Cells	183
<i>Kei Endo and Hirohide Saito</i>	

14	Guanine-Tethered Antisense Oligonucleotides as Synthetic Riboregulators	197
	<i>Masaki Hagihara</i>	
15	In Vitro Selection of Allosteric Ribozymes that Sense the Bacterial Second Messenger c-di-GMP	209
	<i>Kazuhiro Furukawa, Hongzhou Gu, and Ronald R. Breaker</i>	
16	Dual-Selection for Evolution of In Vivo Functional Aptazymes as Riboswitch Parts	221
	<i>Jonathan A. Goler, James M. Carothers, and Jay D. Keasling</i>	
17	In Vivo Screening for Aptazyme-Based Bacterial Riboswitches.	237
	<i>Charlotte Rehm and Jörg S. Hartig</i>	
18	Engineered Riboswitch as a Gene-Regulatory Platform for Reducing Antibiotic Resistance	251
	<i>Libing Liu and Shu Wang</i>	
19	Construction of Ligand-Responsive MicroRNAs that Operate Through Inhibition of Drosha Processing	259
	<i>Chase L. Beisel, Ryan J. Bloom, and Christina D. Smolke</i>	
20	A Three-Dimensional Design Strategy for a Protein-Responsive shRNA Switch	269
	<i>Shunichi Kashida and Hirohide Saito</i>	
	<i>Index</i>	287

Artificial Riboswitches

Methods and Protocols

Ogawa, A. (Ed.)

2014, X, 289 p. 75 illus., 45 illus. in color., Hardcover

ISBN: 978-1-62703-754-9

A product of Humana Press