
Contents

<i>Preface</i>	<i>v</i>
<i>Contributors</i>	<i>ix</i>
PART I BACKGROUND AND OVERVIEW	
1 Structural Biology of Nonribosomal Peptide Synthetases	3
<i>Bradley R. Miller and Andrew M. Gulick</i>	
2 The Assembly Line Enzymology of Polyketide Biosynthesis	31
<i>Marisa Till and Paul R. Race</i>	
PART II IN VITRO METHODS	
3 Measurement of Nonribosomal Peptide Synthetase Adenylation Domain Activity Using a Continuous Hydroxylamine Release Assay	53
<i>Benjamin P. Duckworth, Daniel J. Wilson, and Courtney C. Aldrich</i>	
4 Affinity Purification Method for the Identification of Nonribosomal Peptide Biosynthetic Enzymes Using a Synthetic Probe for Adenylation Domains	63
<i>Fumihiko Ishikawa and Hideaki Kakeya</i>	
5 Colorimetric Detection of the Adenylation Activity in Nonribosomal Peptide Synthetases	77
<i>Chitose Maruyama, Haruka Niikura, Masahiro Takakuwa, Hajime Katano, and Yoshimitsu Hamano</i>	
6 Facile Synthetic Access to Glycopeptide Antibiotic Precursor Peptides for the Investigation of Cytochrome P450 Action in Glycopeptide Antibiotic Biosynthesis	85
<i>Clara Brieke, Veronika Kratzig, Madeleine Peschke, and Max J. Cryle</i>	
7 Reconstitution of Fungal Nonribosomal Peptide Synthetases in Yeast and In Vitro	103
<i>Ralph A. Cacho and Yi Tang</i>	
8 The Continuing Development of <i>E. coli</i> as a Heterologous Host for Complex Natural Product Biosynthesis	121
<i>Haoran Zhang, Lei Fang, Marcia S. Osburne, and Blaine A. Pfeifer</i>	
9 Screening for Expressed Nonribosomal Peptide Synthetases and Polyketide Synthases Using LC-MS/MS-Based Proteomics	135
<i>Yunqiu Chen, Ryan A. McClure, and Neil L. Kelleher</i>	
10 Enhancing Nonribosomal Peptide Biosynthesis in Filamentous Fungi	149
<i>Alexandra A. Soukup, Nancy P. Keller, and Philipp Wiemann</i>	
11 In Situ Analysis of Bacterial Lipopeptide Antibiotics by Matrix-Assisted Laser Desorption/Ionization Mass Spectrometry Imaging	161
<i>Delphine Debois, Marc Ongena, Hélène Cawoy, and Edwin De Pauw</i>	

12	Secondary Metabolic Pathway-Targeted Metabolomics	175
	<i>Maria I. Vizcaino and Jason M. Crawford</i>	
PART III BIOINFORMATIC METHODS		
13	Annotating and Interpreting Linear and Cyclic Peptide Tandem Mass Spectra	199
	<i>Timo Horst Johannes Niedermeyer</i>	
14	Bioinformatics Tools for the Discovery of New Nonribosomal Peptides	209
	<i>Valérie Leclère, Tilmann Weber, Philippe Jacques, and Maude Pupin</i>	
15	The Use of ClusterMine360 for the Analysis of Polyketide and Nonribosomal Peptide Biosynthetic Pathways	233
	<i>Nicolas Tremblay, Patrick Hill, Kyle R. Conway, and Christopher N. Boddy</i>	
16	Alignment-Free Methods for the Detection and Specificity Prediction of Adenylation Domains	253
	<i>Guillermin Agüero-Chapin, Gisselle Pérez-Machado, Amina Sánchez-Rodríguez, Miguel Machado Santos, and Agostinho Antunes</i>	
17	Characterization of Nonribosomal Peptide Synthetases with NRPSp	273
	<i>Carlos Prieto</i>	
	<i>Index</i>	279

Nonribosomal Peptide and Polyketide Biosynthesis
Methods and Protocols

Evans, B.S. (Ed.)

2016, XI, 281 p. 80 illus., 49 illus. in color., Hardcover

ISBN: 978-1-4939-3373-0

A product of Humana Press