
Contents

<i>Preface</i>	<i>vii</i>
<i>Contributors</i>	<i>xiii</i>

SECTION I: ISOLATION, PURIFICATION, DESIGN, AND SYNTHESIS OF ANTIMICROBIAL PEPTIDES

1. Antimicrobial Peptides in Frog Skin Secretions <i>J. Michael Conlon and Agnes Sonnenend</i>	3
2. Purification of Antimicrobial Peptides from Human Skin <i>Jens-M. Schröder</i>	15
3. Strategies for the Isolation and Characterization of Antibacterial Lantibiotics <i>Daniela Jabes and Stefano Donadio</i>	31
4. Expression and Purification of Recombinant α -Defensins and α -Defensin Precursors in <i>Escherichia coli</i> <i>Sharel Figueredo, Jennifer R. Mastroianni, Kenneth P. Tai, and André J. Ouellette</i>	47
5. Production of Recombinant Antimicrobial Peptides in Bacteria <i>Mateja Zorko and Roman Jerala</i>	61
6. Methods for Building Quantitative Structure–Activity Relationship (QSAR) Descriptors and Predictive Models for Computer-Aided Design of Antimicrobial Peptides <i>Olivier Taboureau</i>	77
7. Synthesis and Thermodynamic Characterization of Small Cyclic Antimicrobial Arginine and Tryptophan-Rich Peptides with Selectivity for Gram-Negative Bacteria <i>Mojtaba Bagheri</i>	87
8. Synthesis of Antimicrobial Peptides Using the SPOT Technique <i>Dirk F.H. Winkler and Kai Hilpert</i>	111
9. High-Throughput Screening for Antimicrobial Peptides Using the SPOT Technique <i>Kai Hilpert</i>	125

SECTION II: ANALYSIS, PROPERTIES, AND MECHANISMS OF ANTIMICROBIAL PEPTIDES

10. Antimicrobial Peptides: The LPS Connection <i>Andrea Giuliani, Giovanna Pirri, and Andrea C. Rinaldi</i>	137
---	-----

11.	Binding and Permeabilization of Model Membranes by Amphipathic Peptides	155
	<i>Paulo F. Almeida and Antje Pokorny</i>	
12.	Comparing Bacterial Membrane Interactions of Antimicrobial Peptides and Their Mimics	171
	<i>Nathaniel P. Chongsirawatana and Annelise E. Barron</i>	
13.	Dynamic Transitions of Membrane-Active Peptides	183
	<i>Stephan L. Grage, Sergii Afonin, and Anne S. Ulrich</i>	
14.	Solid-State NMR Investigations of Membrane-Associated Antimicrobial Peptides	209
	<i>Christopher Aisenbrey, Philippe Bertani, and Burkhard Bechinger</i>	
15.	Use of Atomic Force Microscopy as a Tool to Understand the Action of Antimicrobial Peptides on Bacteria	235
	<i>Ang Li, Bow Ho, Jeak Ling Ding, and Chwee Teck Lim</i>	
16.	Fluorescence and Electron Microscopy Methods for Exploring Antimicrobial Peptides Mode(s) of Action	249
	<i>Ludovica Marcellini, Maria Giammatteo, Pierpaolo Aimola, and Maria Luisa Mangoni</i>	
17.	Molecular Simulations of Antimicrobial Peptides	267
	<i>Allison Langham and Yiannis N. Kaznessis</i>	
18.	Computer-Based Analysis, Visualization, and Interpretation of Antimicrobial Peptide Activities	287
	<i>Ralf Mikut</i>	

SECTION III: ANTIMICROBIAL PEPTIDES AS THERAPEUTIC AGENTS

19.	Potential Therapeutic Application of Host Defense Peptides	303
	<i>Lijuan Zhang and Timothy J. Falla</i>	
20.	Therapeutic Potential of HDPs as Immunomodulatory Agents	329
	<i>Håvard Jenssen and Robert E.W. Hancock</i>	
21.	Assay Systems for Measurement of Anti-inflammatory Activity	349
	<i>Evelina Rubinchik and Christopher Pasetka</i>	
22.	Ex Vivo Skin Infection Model	359
	<i>Evelina Rubinchik and Christopher Pasetka</i>	
23.	Measuring Antimicrobial Peptide Activity on Epithelial Surfaces in Cell Culture	371
	<i>Gill Diamond, Sunghan Yim, Isaura Rigo, and Laura McMahon</i>	
24.	Antimicrobial and Antibiofilm Activity of Quorum Sensing Peptides and Peptide Analogues Against Oral Biofilm Bacteria	383
	<i>Karen LoVetri and Srinivasa Madhyastha</i>	
25.	Characterization of the Leishmanicidal Activity of Antimicrobial Peptides	393
	<i>Juan Román Luque-Ortega and Luis Rivas</i>	

<i>Subject Index</i>	421
--------------------------------	-----



<http://www.springer.com/978-1-60761-593-4>

Antimicrobial Peptides
Methods and Protocols
Giuliani, A.; Rinaldi, A.C. (Eds.)
2010, XV, 424 p., Hardcover
ISBN: 978-1-60761-593-4
A product of Humana Press