

Contents

1 Introduction: Key Levels of Biocommunication of Bacteria	1
Guenther Witzany	

Part I Intracellular Biocommunication

2 Communication Among Phages, Bacteria, and Soil Environments	37
Stephen T. Abedon	
3 Soil Bacteria and Bacteriophages	67
Robert Armon	
4 Soil Phage Ecology: Abundance, Distribution, and Interactions with Bacterial Hosts	113
Kurt E. Williamson	
5 Identification and Analysis of Prophages and Phage Remnants in Soil Bacteria	137
K.V. Srividhya and S. Krishnaswamy	
6 Back to the Soil: Retroviruses and Transposons	161
Omar Bagasra and D. Gene Pace	
7 Ubiquitous Bacteriophage Hosts in Rice Paddy Soil	189
Makoto Kimura, Guanghua Wang, Natsuko Nakayama, and Susumu Asakawa	

8	Phage Biopesticides and Soil Bacteria: Multilayered and Complex Interactions	215
	Antonet M. Svircev, Susan M. Lehman, Peter Sholberg Dwayne Roach, and Alan J. Castle	
9	Interactions Between Bacteriophage DinoHI and a Network of Integrated Elements Which Control Virulence in <i>Dichelobacter nodosus</i>, the Causative Agent of Ovine Footrot	237
	Brian F. Cheetham, Gabrielle Whittle, Michael Ting, and Margaret E. Katz	
10	Gene Network Holography of the Soil Bacterium <i>Bacillus subtilis</i>	255
	Dalit Roth, Asaf Madi, Dror Y. Kenett, and Eshel Ben-Jacob	
11	Population and Comparative Genomics Inform Our Understanding of Bacterial Species Diversity in the Soil	283
	Margaret A. Riley	
 Part II Intercellular and Trans-Kingdom Biocommunication		
12	Plasmids of the <i>Rhizobiaceae</i> and Their Role in Interbacterial and Transkingdom Interactions	295
	Katherine M. Pappas and Miguel A. Cevallos	
13	Quorum Sensing and Quorum Quenching in Soil Ecosystems	339
	Yves Dessaux, Emilie Chapelle, and Denis Faure	
14	Integration of Cell-to-Cell Signals in Soil Bacterial Communities	369
	Max Teplitski, Massimo Merighi, Mengsheng Gao, and Jayne Robinson	
15	Beneficial Rhizobacteria Induce Plant Growth: Mapping Signaling Networks in <i>Arabidopsis</i>	403
	Paul W. Paré, Huiming Zhang, Mina Aziz, Xitao Xie Mi-Seong Kim, Xin Shen, and Jinlin Zhang	
16	Signal and Nutrient Exchange in the Interactions Between Soil Algae and Bacteria	413
	Max Teplitski and Sathish Rajamani	

17 Communication Among Soil Bacteria and Fungi 427
Ilona Pfeiffer

18 Microbe–Microbe, Microbe–Plant Biocommunication 439
Ralf Oelmüller, Neeraj Shrivastava, Meghna Pohani
Kailash C. Upadhayaya, Irena Sherameti, Paul Murugan
Shashibala Singh, and Ajit Varma

Index 465

Biocommunication in Soil Microorganisms

Witzany, G. (Ed.)

2011, XX, 476 p. 75 illus., 22 illus. in color., Hardcover

ISBN: 978-3-642-14511-7