

Contents

1	Metagenomics as a Tool for Enzyme Discovery: Hydrolytic Enzymes from Marine-Related Metagenomes	1
	Ana Popovic, Anatoly Tchigvintsev, Hai Tran, Tatyana N. Chernikova, Olga V. Golyshina, Michail M. Yakimov, Peter N. Golyshin, and Alexander F. Yakunin	
2	Investigating Bacterial Protein Synthesis Using Systems Biology Approaches	21
	Alla Gagarinova and Andrew Emili	
3	Biology and Assembly of the Bacterial Envelope	41
	Karine Dufresne and Catherine Paradis-Bleau	
4	Comparative Genomics and Evolutionary Modularity of Prokaryotes	77
	Cedoljub Bundalovic-Torma and John Parkinson	
5	Predicting Functional Interactions Among Genes in Prokaryotes by Genomic Context	97
	G. Moreno-Hagelsieb and G. Santoyo	
6	Functional Implications of Domain Organization Within Prokaryotic Rhomboid Proteases	107
	Rashmi Panigrahi and M. Joanne Lemieux	
7	Mapping Transcription Regulatory Networks with ChIP-seq and RNA-seq	119
	Joseph T. Wade	
8	Quantitative and Systems-Based Approaches for Deciphering Bacterial Membrane Interactome and Gene Function	135
	Viktor Deineko, Ashwani Kumar, James Vlasblom, and Mohan Babu	

9	Toward Network Biology in <i>E. coli</i> Cell	155
	Hirotsada Mori, Rikiya Takeuchi, Yuta Otsuka, Steven Bowden, Katsushi Yokoyama, Ai Muto, Igor Libourel, and Barry L. Wanner	
10	Genetic Interaction Scoring Procedure for Bacterial Species	169
	Omar Wagih and Leopold Parts	
11	Mapping the Protein-Protein Interactome Networks Using Yeast Two-Hybrid Screens	187
	Seesandra Venkatappa Rajagopala	
12	Biogenesis of <i>Escherichia coli</i> DMSO Reductase: A Network of Participants for Protein Folding and Complex Enzyme Maturation	215
	Catherine S. Chan and Raymond J. Turner	
13	Microbial Proteome Profiling and Systems Biology: Applications to <i>Mycobacterium tuberculosis</i>	235
	Olga T. Schubert and Ruedi Aebersold	
14	Structural Aspects of Bacterial Outer Membrane Protein Assembly	255
	Charles Calmettes, Andrew Judd, and Trevor F. Moraes	
15	Substrate Interaction Networks of the <i>Escherichia coli</i> Chaperones: Trigger Factor, DnaK and GroEL	271
	Vaibhav Bhandari and Walid A. Houry	
16	Genetic, Biochemical, and Structural Analyses of Bacterial Surface Polysaccharides	295
	Colin A. Cooper, Iain L. Mainprize, and Nicholas N. Nickerson	
	Index	317