

Table of Contents

CONTRIBUTORS TO VOLUME 422	ix
VOLUMES IN SERIES	xiii

Section I. Computational Analyses of Sequences and Sequence Alignments

1. Comparative Genomic and Protein Sequence Analyses of a Complex System Controlling Bacterial Chemotaxis	KRISTIN WUICHET, ROGER P. ALEXANDER, AND IGOR B. ZHULIN	3
2. Two-Component Systems in Microbial Communities: Approaches and Resources for Generating and Analyzing Metagenomic Data Sets	MIRCEA PODAR	32
3. Identification of Sensory and Signal-Transducing Domains in Two-Component Signaling Systems	MICHAEL Y. GALPERIN AND ANASTASIA N. NIKOLSKAYA	47
4. Features of Protein-Protein Interactions in Two-Component Signaling Deduced from Genomic Libraries	ROBERT A. WHITE, HENDRIK SZURMANT, JAMES A. HOCH, AND TERENCE HWA	75
5. Sporulation Phosphorelay Proteins and Their Complexes: Crystallographic Characterization	KOTTAYIL I. VARUGHESE, HAIYAN ZHAO, VIDYA HARINI VELDORE, AND JAMES ZAPF	102
6. Control Analysis of Bacterial Chemotaxis Signaling	TAU-MU YI, BURTON W. ANDREWS, AND PABLO A. IGLESIAS	123
7. Classification of Response Regulators Based on Their Surface Properties	DOUGLAS J. KOJETIN, DANIEL M. SULLIVAN, RICHELE J. THOMPSON, AND JOHN CAVANAGH	141

Section II. Biochemical and Genetic Assays of Individual Components of Signaling Systems

8. Purification and Assays of <i>Rhodobacter capsulatus</i> RegB-RegA Two-Component Signal Transduction System	LEE R. SWEM, DANIELLE L. SWEM, JIANG WU, AND CARL E. BAUER	173
9. Purification and Reconstitution of PYP-Phytochrome with Biliverdin and 4-Hydroxycinnamic Acid	YOUNG-HO CHUNG, SHINJI MASUDA, AND CARL E. BAUER	184
10. Oxygen and Redox Sensing by Two-Component Systems That Regulate Behavioral Responses: Behavioral Assays and Structural Studies of Aer Using <i>In Vivo</i> Disulfide Cross-Linking	BARRY L. TAYLOR, KYLIE J. WATTS, AND MARK S. JOHNSON	190
11. Two-Component Signaling in the Virulence of <i>Staphylococcus aureus</i> : A Silkworm Larvae-Pathogenic Agent Infection Model of Virulence	KENJI KUROKAWA, CHIKARA KAITO, AND KAZUHISA SEKIMIZU	233
12. TonB System, <i>In Vivo</i> Assays and Characterization	KATHLEEN POSTLE	245
13. Biochemical Characterization of Plant Ethylene Receptors Following Transgenic Expression in Yeast	G. ERIC SCHALLER AND BRAD M. BINDER	270
14. Structure of SixA, a Histidine Protein Phosphatase of the ArcB Histidine-Containing Phosphotransfer Domain in <i>Escherichia coli</i>	TOSHIO HAKOSHIMA AND HISAKO ICHIHARA	288
15. Triggering and Monitoring Light-Sensing Reactions in Protein Crystals	PIERRE-DAMIEN COUREUX AND ULRICH K. GENICK	305
16. Synthesis of a Stable Analog of the Phosphorylated Form of CheY: Phosphono-CheY	CHRISTOPHER J. HALKIDES, CORY J. BOTTONNE, ERIC S. CASPER, R. MATTHEW HAAS, AND KENNETH McADAMS	338
17. Application of Fluorescence Resonance Energy Transfer to Examine EnvZ/OmpR Interactions	S. THOMAS KING AND LINDA J. KENNEY	352
18. Gene Promoter Scan Methodology for Identifying and Classifying Coregulated Promoters	IGOR ZWIR, OSCAR HARARI, AND EDUARDO A. GROISMAN	361

19. Targeting Two-Component Signal Transduction: A Novel Drug Discovery System	ARIO OKADA, YASUHIRO GOTOH, TAKAFUMI WATANABE, EJI FURUTA, KANHEYOSHI YAMAMOTO, AND RYUTARO UTSUMI	386
20. The Essential YycFG Two-Component System of <i>Bacillus subtilis</i>	HENDRIK SZURMANT, TATSUYA FUKUSHIMA, AND JAMES A. HOCH	396

Section III. Physiological Assays and Readouts

21. Isolation and Characterization of Chemotaxis Mutants of the Lyme Disease Spirochete <i>Borrelia burgdorferi</i> Using Allelic Exchange Mutagenesis, Flow Cytometry, and Cell Tracking	MD. A. MOTALEB, MICHAEL R. MILLER, RICHARD G. BAKKER, CHUNHAO LI, AND NYLES W. CHARON	421
22. Phosphorylation Assays of Chemotaxis Two-Component System Proteins in <i>Borrelia burgdorferi</i>	MD. A. MOTALEB, MICHAEL R. MILLER, CHUNHAO LI, AND NYLES W. CHARON	438
23. Regulation of Respiratory Genes by ResD–ResE Signal Transduction System in <i>Bacillus subtilis</i>	HAO GENG, PETER ZUBER, AND MICHIKO M. NAKANO	448
24. Detection and Measurement of Two-Component Systems That Control Dimorphism and Virulence in Fungi	JULIE C. NEMECEK, MARCEL WÜTHRICH, AND BRUCE S. KLEIN	465
25. Using Two-Component Systems and Other Bacterial Regulatory Factors for the Fabrication of Synthetic Genetic Devices	ALEXANDER J. NINFA, STEPHEN SELINSKY, NICOLAS PERRY, STEPHEN ATKINS, QI XIU SONG, AVI MAYO, DAVID ARPS, PETER WOOLF, AND MARIETTE R. ATKINSON	488
AUTHOR INDEX		513
SUBJECT INDEX		541