Bacteria have evolved extraordinary abilities to regulate aspects of their behaviour (such as gene expression) in response to signals in the intracellular and extracellular environment. Key to this are the diverse macromolecules (proteins or RNA) that sense change through direct interactions with chemical or physical stimuli. In recent years there have been tremendous advances in our understanding of the structure and function of these signal receptors, and of how interaction with the signal triggers changes in their activity and downstream events. For some systems this understanding extends to the atomic level.

In this unique book, an international team of experts reviews a selection of important model systems, providing a timely snapshot of the current state of research in the field. The book opens with an introductory chapter that reviews the diversity of signal recognition mechanisms, illustrating the breadth of the field. Subsequent chapters include descriptions of the sensing of ligands (α-ketoglutarate, adenylate energy charge, glutamine and xenobiotic compounds), chemoreceptors, iron-sulfur cluster-based sensors, metal-dependent and metal-responsive sensors, thiol-based sensors, and PDZ domains as sensors of other proteins. This book provides essential reading for everyone with an interest in sensory mechanisms, regulatory networks and responses to environmental stress in bacteria.
MALDI-TOF Mass Spectrometry in Microbiology
Edited by: Markus Kostrzewa and Sören Schubert (Published: 2016)

Aspergillus and Penicillium in the Post-genomic Era
Edited by: Ronald P. de Vries, Isabelle Benoit Gelber and Mikael Rørdam Andersen (Published: 2016)

The Bacteriocins: Current Knowledge and Future Prospects
Edited by: Robert L. Dorit, Sandra M. Roy and Margaret A. Riley (Published: 2016)

Omics in Plant Disease Resistance
Edited by: Vijai Bhadauria (Published: 2016)

Acidophiles: Life in Extremely Acidic Environments
Edited by: Raquel Quatrini and D. Barrie Johnson (Published: 2016)

Climate Change and Microbial Ecology: Current Research and Future Trends
Edited by: Jürgen Marxsen (Published: 2016)

Biofilms in Bioremediation: Current Research and Emerging Technologies
Edited by: Gavin Lear (Published: 2016)

Microalgae: Current Research and Applications
Edited by: Maria-Nefeli Tsaloglou (Published: 2016)

Gas Plasma Sterilization in Microbiology: Theory, Applications, Pitfalls and New Perspectives
Edited by: Hideharu Shintani and Akikazu Sakudo (Published: 2016)

Virus Evolution: Current Research and Future Directions
Edited by: Scott C. Weaver, Mark Denison, Marilyn Roossinck and Marco Vignuzzi (Published: 2016)

Arboviruses: Molecular Biology, Evolution and Control
Edited by: Nikos Vasilakis and Duane J. Gubler (Published: 2016)

Shigella: Molecular and Cellular Biology
Edited by: William D. Picking and Wendy L. Picking (Published: 2016)

Aquatic Biofilms: Ecology, Water Quality and Wastewater Treatment
Edited by: Anna M. Romani, Helena Guasch and M. Dolors Balaguer (Published: 2016)

Alphaviruses: Current Biology
Edited by: Suresh Mahalingam, Lara Herrero and Belinda Herring (Published: 2016)

Thermophilic Microorganisms
Edited by: Fu-Li Li (Published: 2015)

Flow Cytometry in Microbiology: Technology and Applications
Edited by: Martin G. Wilkinson (Published: 2015)

“an impressive group of experts” (ProtoView)

Probiotics and Prebiotics: Current Research and Future Trends
Edited by: Koen Venema and Ana Paula do Carmo (Published: 2015)

Epigenetics: Current Research and Emerging Trends
Edited by: Brian P. Chadwick (Published: 2015)

"this is one text you don't want to miss" (Epigenie); "up-to-date information" (ChemMedChem)

Corynebacterium glutamicum: From Systems Biology to Biotechnological Applications
Edited by: Andreas Burkovski (Published: 2015)

“Without question a valuable book” (BIOSpektrum)

Advanced Vaccine Research Methods for the Decade of Vaccines
Edited by: Fabio Bagnoli and Rino Rappuoli (Published: 2015)

Full details at www.caister.com