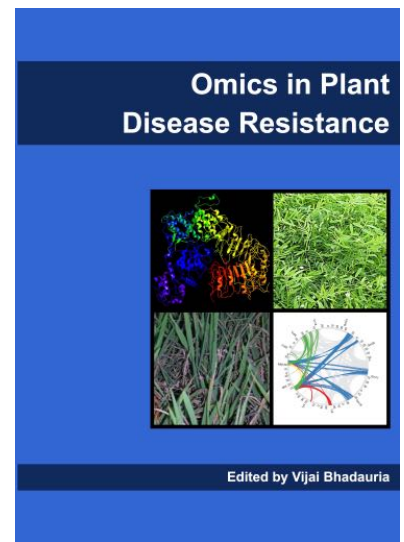


OMICS IN PLANT DISEASE RESISTANCE



Edited by: Vijai Bhaduria
University of Saskatchewan, Canada

iv + 144 pp, 2016 **available now!**

Book: ISBN 978-1-910190-35-7 £179, \$319

Ebook: ISBN 978-1-910190-36-4 £179, \$319

Genomics and post-genomics technologies, including genomics, transcriptomics, proteomics, metabolomics, next-generation sequencing-based genotyping and mass spectrometry, are becoming increasingly important in agricultural research and in particular for the genetic improvement of crops for disease resistance.

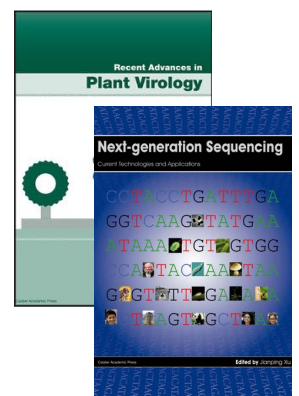
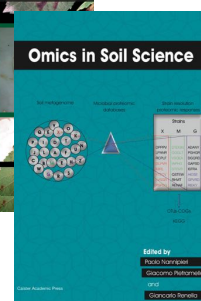
Distinguished scientists from around the world, under the expert guidance of the editor Vijai Bhaduria, overview and critically analyse the omics technologies currently being used in agricultural research. The authors review the practical applications and implications of these technologies in the genetic improvement of crops for resistance against various viral, bacterial and fungal diseases of economic significance. Topics include: resistance to fungal diseases in lentil, proteomic studies in rice, metabolomics of disease resistance in crops, omics approaches in *Brassica*, resistance to planthopper-borne viruses, resistance to root-knot nematodes, complex oomycete plant interactions, omics of pathogen resistant plants, rice-*Magnaporthe* interaction, role of nitric oxide, overview of proteomics tools, and pathogen resistance in legumes. In each case the authors comprehensively describe the most relevant technology, the latest applications and the most recent scientific research.

This volume is essential reading for everyone involved in plant disease resistance and crop improvement and is also highly recommended for all plant scientists.

- **Chapter 1:** OMICS in Plant Disease Resistance.
- **Chapter 2:** Wild Help for Enhancing Genetic Resistance in Lentil Against Fungal Diseases.
- **Chapter 3:** Current Status of Proteomic Studies on Defense Responses in Rice.
- **Chapter 4:** Metabolomics of Disease Resistance in Crops.
- **Chapter 5:** Omics Approach to Identify Factors Involved in *Brassica* Disease Resistance.
- **Chapter 6:** Rice Responses and Resistance to Planthopper-Borne Viruses at Transcriptomic and Proteomic Levels.
- **Chapter 7:** The Power of Omics to Identify Plant Susceptibility Factors and to Study Resistance to Root-knot Nematodes.
- **Chapter 8:** RNAseq and Proteomics for Analysing Complex Oomycete Plant Interactions.
- **Chapter 9:** Omics Approaches for the Engineering of Pathogen Resistant Plants.
- **Chapter 10:** Oscillating Transcriptome during Rice-*Magnaporthe* Interaction.
- **Chapter 11:** Transcriptomic Analyses on the Role of Nitric Oxide in Plant Disease Resistance.
- **Chapter 12:** An Overview of Proteomics Tools for Understanding Plant Defense Against Pathogens.
- **Chapter 13:** Linking Biomarker and Comparative Omics to Pathogens in Legumes.

Other publications

- **Bacteria-Plant Interactions**
caister.com/bacteria-plant
- **Omics in Soil Science**
caister.com/omics
- **Recent Advances in Plant Virology**
caister.com/plant-virology
- **Next-generation Sequencing**
caister.com/nextgenseq



Full information at caister.com

Acidophiles

Life in Extremely Acidic Environments
 Edited by: R Quatrini, DB Johnson
 c. 300 pp, April 2016
 Book: ISBN 978-1-910190-33-3 £189/\$319
 Ebook: ISBN 978-1-910190-34-0 £189/\$319
 A comprehensive account of acidophilic microbiology from fundamental to applied aspects.

Climate Change and Microbial Ecology

Current Research and Future Trends
 Edited by: J Marxsen
 c. 220 pp, March 2016
 Book: ISBN 978-1-910190-31-9 £159/\$319
 Ebook: ISBN 978-1-910190-32-6 £159/\$319
 The most important hot-topics in the area of climate change and microbial ecology.

Biofilms in Bioremediation

Current Research and Emerging Technologies
 Edited by: G Lear
 x + 252 pp, March 2016
 Book: ISBN 978-1-910190-29-6 £159/\$319
 Ebook: ISBN 978-1-910190-30-2 £159/\$319
 Up-to-date and authoritative reviews.

Microalgae

Current Research and Applications
 Edited by: MN Tsaloglou
 152 pp, January 2016
 Book: ISBN 978-1-910190-27-2 £129/\$259
 Ebook: ISBN 978-1-910190-28-9 £129/\$259
 The latest research and newest approaches to the study of microalgae.

Gas Plasma Sterilization in Microbiology

Theory, Applications, Pitfalls and New Perspectives
 Edited by: H Shintani, A Sakudo
 c. 156 pp, January 2016
 Book: ISBN 978-1-910190-25-8 £129/\$259
 Ebook: ISBN 978-1-910190-26-5 £129/\$259
 Background and principles, applications and common data-interpretation errors.

Virus Evolution

Current Research and Future Directions
 Edited by: SC Weaver, M Denison, et al.
 366 pp, January 2016
 Book: ISBN 978-1-910190-23-4 £159/\$319
 Ebook: ISBN 978-1-910190-24-1 £159/\$319
 Addresses a wide range of current questions and research approaches at the forefront of the field.

Arboviruses

Molecular Biology, Evolution and Control
 Edited by: N Vasilakis, DJ Gubler
 c. 209 pp, April 2016
 Book: ISBN 978-1-910190-21-0 £159/\$319
 Ebook: ISBN 978-1-910190-22-7 £159/\$319
 Taxonomy and genome organization, arbovirus diagnostics and control. Essential reading.

Shigella

Molecular and Cellular Biology
 Edited by: WD Picking, WL Picking
 280 pp, January 2016
 Book: ISBN 978-1-910190-19-7 £159/\$319
 Ebook: ISBN 978-1-910190-20-3 £159/\$319
 Up-to-date reviews of current knowledge and recent advances in the molecular biology of *Shigella*.

Aquatic Biofilms

Ecology, Water Quality and Wastewater Treatment
 Edited by: AM Romani, H Guasch, MD Balaguer
 xii + 230 pp, January 2016
 Book: ISBN 978-1-910190-17-3 £159/\$319
 Ebook: ISBN 978-1-910190-18-0 £159/\$319
 Aquatic biofilms with an emphasis on the characteristics and ecology of biofilms in natural ecosystems and a focus on biofilm applications linked to water pollution problems.

Alphaviruses

Current Biology
 Edited by: S Mahalingam, L Herrero, B Herring
 x + 184 pp, January 2016
 Book: ISBN 978-1-910190-15-9 £159/\$319
 Ebook: ISBN 978-1-910190-16-6 £159/\$319
 As the first to focus exclusively on alphaviruses, this book serves as an invaluable resource for researchers and clinicians working with alphaviruses and related viruses. Essential reading.

Thermophilic Microorganisms

Edited by: F Li
 x + 254 pp, September 2015
 Book: ISBN 978-1-910190-13-5 £159/\$319
 Ebook: ISBN 978-1-910190-14-2 £159/\$319
 Reviews of current research on thermophilic microorganisms providing a timely overview of the field and covering the ecology, enzymology and genetics of thermophiles.

Flow Cytometry in Microbiology

Technology and Applications
 Edited by: MG Wilkinson
 xii + 218 pp, September 2015
 Book: ISBN 978-1-910190-11-1 £159/\$319
 Ebook: ISBN 978-1-910190-12-8 £159/\$319
 "an impressive group of experts" (*ProtoView*)

Probiotics and Prebiotics

Current Research and Future Trends
 Edited by: K Venema, AP Carmo
 xvi + 508 pp, August 2015
 Book: ISBN 978-1-910190-09-8 £219/\$360
 Ebook: ISBN 978-1-910190-10-4 £219/\$360
 Containing 33 chapters, the book is an invaluable source of information and essential reading.

Epigenetics

Current Research and Emerging Trends
 Edited by: BP Chadwick
 xii + 354 pp, July 2015
 Book: ISBN 978-1-910190-07-4 £159/\$319
 Ebook: ISBN 978-1-910190-08-1 £159/\$319
 "this is one text you don't want to miss" (*Epigenie*)

Corynebacterium glutamicum

From Systems Biology to Biotechnological Applications
 Edited by: A Burkovski
 x + 198 pp, May 2015
 Book: ISBN 978-1-910190-05-0 £159/\$319
 Ebook: ISBN 978-1-910190-06-7 £159/\$319
 "Without question a valuable book" (*BIOSpektrum*)

Advanced Vaccine Research Methods for the Decade of Vaccines

Edited by: F Bagnoli, R Rappuoli
 xiv + 456 pp, April 2015
 Book: ISBN 978-1-910190-03-6 £180/\$360
 Ebook: ISBN 978-1-910190-04-3 £180/\$360
 A thorough and up-to-date review of the age of omics technologies. Essential reading for everyone working in vaccine research and development.

Antifungals

From Genomics to Resistance and the Development of Novel Agents
 Edited by: AT Coste, P Vandeputte
 x + 334 pp, April 2015
 Book: ISBN 978-1-910190-01-2 £159/\$319
 Ebook: ISBN 978-1-910190-02-9 £159/\$319
 "both timely and well-conceived" (*ChemMedChem*); "timely and scholarly overview" (*IMA Fungus*); "extremely valuable" (*CID*); "Reading this book was a real adventure" (*Gen. Physiol. Biophys.*)

Bacteria-Plant Interactions

Advanced Research and Future Trends
 Edited by: J Murillo, BA Vinatzer, RW Jackson, et al.
 x + 228 pp, March 2015
 Book: ISBN 978-1-908230-58-4 £159/\$319
 Ebook: ISBN 978-1-910190-00-5 £159/\$319
 "an up-to-date overview" (*Ringgold*); "a timely overview ... Essential reading" (*Biotechnol. Agron. Soc. Environ.*); "excellent all-round information" (*BioSpektrum*)

Aeromonas

Edited by: J Graf
 viii + 230 pp, May 2015
 Book: ISBN 978-1-908230-56-0 £159/\$319
 Ebook: ISBN 978-1-908230-57-7 £159/\$319
 "a comprehensive review" (*Ringgold*); "well-written, informative" (*Frontiers Microbiol.*)

Antibiotics

Current Innovations and Future Trends
 Edited by: S Sánchez, AL Demain
 xii + 430 pp, January 2015
 Book: ISBN 978-1-908230-54-6 £180/\$360
 Ebook: ISBN 978-1-908230-55-3 £180/\$360
 "packed full of useful information" (*MicroToday*); "genuinely a brilliant resource" (*ChemMedChem*); "a useful resource" (*Book News*); "insightful reading" (*Biospektrum*); "I thoroughly recommend this textbook" (*Aus. J. Med. Sci.*)

Leishmania

Current Biology and Control
 Edited by: S Adak, R Datta
 x + 242 pp, January 2015
 Book: ISBN 978-1-908230-52-2 £159/\$319
 Ebook: ISBN 978-1-908230-53-9 £159/\$319
 "an excellent reference" (*Doodys*)

Acanthamoeba

Biology and Pathogenesis (2nd edition)
 Edited by: NA Khan
 x + 334 pp, January 2015
 Book: ISBN 978-1-908230-50-8 £159/\$319
 Ebook: ISBN 978-1-908230-51-5 £159/\$319
 "comprehensive review" (*Book News*)

Microarrays

Current Technology, Innovations and Applications
 Edited by: Z He
 x + 246 pp, August 2014
 Book: ISBN 978-1-908230-49-2 £159/\$319
 Ebook: ISBN 978-1-908230-59-1 £159/\$319
 "a valuable and useful source ... recommended" (*Biotechnol. Agron. Soc. Environ.*)

Metagenomics of the Microbial Nitrogen Cycle

Theory, Methods and Applications
 Edited by: D Marco
 xiv + 268 pp, September 2014
 Book: ISBN 978-1-908230-48-5 £159/\$319
 Ebook: ISBN 978-1-908230-60-7 £159/\$319
 "a strong overview" (*Ringgold*)

Pathogenic Neisseria

Genomics, Molecular Biology and Disease Intervention
 Edited by: JK Davies, CM Kahler
 x + 260 pp, July 2014
 Book: ISBN 978-1-908230-47-8 £159/\$319
 Ebook: ISBN 978-1-908230-61-4 £159/\$319
 "a current overview on the most important research" (*Ringgold*)

Proteomics

Targeted Technology, Innovations and Applications
 Edited by: M Fuentes, J LaBaer
 x + 186 pp, September 2014
 Book: ISBN 978-1-908230-46-1 £159/\$319
 Ebook: ISBN 978-1-908230-62-1 £159/\$319
 "many excellent chapters" (*Doodys*)