

Applications of Molecular Microbiological Methods

Edited by: Torben L. Skovhus, Sean M. Caffrey and Casey R.J. Hubert

Det Norske Veritas (DNV), Bergen, Norway; Genome Alberta, Calgary, Canada; Newcastle University, Newcastle, UK; respectively

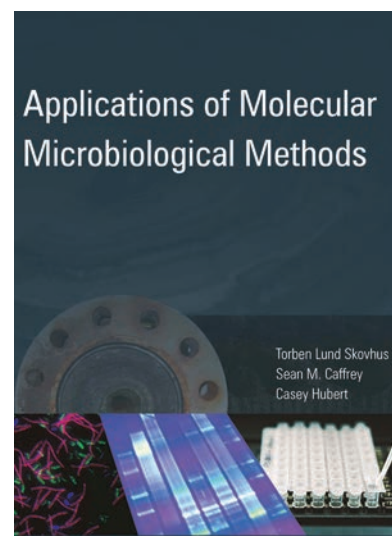
xii + 214 pp, March 2014 (hardback); January 2014 (ebook)

Hardback: ISBN 978-1-908230-31-7 £159, \$319. **Ebook:** ISBN 978-1-908230-69-0 £159, \$319

available now!

Written by international experts in the field, this book presents emerging molecular methods that allow the diversity of a microbial community to be surveyed and its functions to be investigated. The book provides examples of the application of molecular microbiological methods in various industrial applications, medical settings and natural environments, and describes the methods and technologies currently in use.

This practical, authoritative and up-to-date volume is a valuable resource for anyone applying or developing molecular methods in any area of microbiology and is a recommended acquisition for all microbiology laboratories.



• **Chapter 1:** Molecular Methods in Microbiologically Influenced Corrosion: Research, Monitoring and Control. • **Chapter 2:** Using the Power of Molecular Microbiological Methods in Oilfield Corrosion Management to Diagnose MIC. • **Chapter 3:** Next Generation Sequencing Approach to Understand Pipeline Biocorrosion. • **Chapter 4:** Molecular Microbiological Methods Applied on Ship Ballast Tank Samples. • **Chapter 5:** Molecular Characterization of Microbial Communities Associated with Accelerated Low Water Corrosion (ALWC) on European Harbor Structures. • **Chapter 6:** Application of the qPCR Technique for SRB Quantification in Samples from the Oil and Gas Industries. • **Chapter 7:** Molecular Microbiological Methods Applied to Microbial Methane Production in Oil Reservoirs, Coal Beds, and Shales. • **Chapter 8:** Characterization of Bacterial Communities in Suspected Prosthetic Joint Infections. • **Chapter 9:** Using the Core and Supra Genomes to Determine Diversity and Natural Proclivities among Bacterial Strains. • **Chapter 10:** qPCR and RT-qPCR Applied to Methane-cycling Archaea in the Marine Sediments of the White Oak River Estuary. • **Chapter 11:** The Metabolic Function of Uncultured Microorganisms Assessed Through Single Cell Genomic Techniques. • **Chapter 12:** Assessing Microbial Activity and Degradation Pathways in the Environment by Measuring Naturally Occurring Stable Isotopes in Organic Compounds. • **Chapter 13:** Metagenomic Analysis of Microbial Communities and Beyond. • **Chapter 14:** Stable Isotope Probing in Environmental Microbiology Studies. • **Chapter 15:** Fluorescence in situ Hybridization (FISH) for the Identification and Quantification of Microorganisms. • **Chapter 16:** Quantitative Real-time Polymerase Chain Reaction (qPCR) Methods for Abundance and Activity Measures. • **Chapter 17:** Investigation of Microorganisms at the Single-Cell Level using Raman Microspectroscopy and Nanometer-scale Secondary Ion Mass Spectrometry.

New!!! Ebook and individual chapter downloads can be purchased. www.caister.com

Other books of interest

Molecular Diagnostics

Current Research and Applications

Edited by: J Huggett, J O'Grady
c. 270 pp, May 2014

Hardback: ISBN 978-1-908230-41-6 £159/\$319

Ebook: ISBN 978-1-908230-64-5 £159/\$319

The application of molecular technology in clinical diagnosis in two key diagnostic areas: cancer and infectious diseases.

Bioinformatics and Data Analysis in Microbiology

Edited by: Ö Taştan Bishop
c. 270 pp, April 2014

Hardback: ISBN 978-1-908230-39-3 £159/\$319

Ebook: ISBN 978-1-908230-73-7 £159/\$319

Invaluable, up-to-date and detailed information on various aspects of bioinformatics data analysis with applications to microbiology.

Omics in Soil Science

Edited by: P Nannipieri, et al.
x + 198 pp, January 2014

Hardback: ISBN 978-1-908230-32-4 £159/\$319

Ebook: ISBN 978-1-908230-94-2 £159/\$319

State-of-the-art of omic applications in soil science including the application of metagenomics, metatranscriptomics and proteomics.

available now!

Oral Microbial Ecology

Current Research and New Perspectives

Edited by: NS Jakubovics, RJ Palmer
xii + 232 pp, February 2013

Hardback: ISBN 978-1-908230-17-1 £159/\$319

Ebook: ISBN 978-1-908230-82-9 £159/\$319

Essential text for scientists interested in oral microbiology, bacterial communities and biofilms.

Real-Time PCR in Food Science

Current Technology and Applications

Edited by: D Rodríguez-Lázaro
x + 286 pp, January 2013

Hardback: ISBN 978-1-908230-15-7 £159/\$319

Ebook: ISBN 978-1-908230-80-5 £159/\$319

"I would recommend this text to anyone" (AJMS);
"an excellent, detailed guide" (Emerg. Inf. Dis.)

Bioremediation of Mercury

Current Research and Industrial Applications

Edited by: I Wagner-Döbler
xii + 144 pp, January 2013

Hardback: ISBN 978-1-908230-13-3 £120/\$240

Ebook: ISBN 978-1-908230-78-2 £120/\$240

Established experts review the latest research in mercury bioremediation, including the genetic engineering of bacteria and plants, and discuss options for the future.

Foodborne and Waterborne Bacterial Pathogens

Epidemiology, Evolution and Molecular Biology

Edited by: SM Faruque
x + 318 pp, July 2012

Hardback: ISBN 978-1-908230-06-5 £159/\$319

"a wealth of detailed, up-to-date information" (Microbiol. Today); "an excellent foundation" (Clin. Inf. Dis.)

Quantitative Real-time PCR in Applied Microbiology

Edited by: M Filion

x + 242 pp, May 2012

Hardback: ISBN 978-1-908230-01-0 £159/\$319

"useful book ... filled with valuable information" (Doodys); "an outstanding book" (Fungal Diversity)

Microbial Biofilms

Current Research and Applications

Edited by: G Lear, GD Lewis
x + 228 pp, February 2012

Hardback: ISBN 978-1-904455-96-7 £159/\$319

"a useful update" (Micro. Today); "highly recommended" (Biospektrum); "highly recommended" (Fungal Diversity)

Bacterial Glycomics

Current Research, Technology and Applications

Edited by: CW Reid, SM Twine, AN Reid
x + 270 pp, February 2012

Hardback: ISBN 978-1-904455-95-0 £159/\$319
"essential" (Doodys); "up-to-date" (IFIS); "an important reference book" (ASM Microbe)

Metagenomics

Current Innovations and Future Trends

Edited by: D Marco

xii + 296 pp, September 2011

Hardback: ISBN 978-1-904455-87-5 £159/\$319
"a snapshot of the current understanding" (BookNews); "a valuable reference book" (Microbiol. Today); "state-of-the art information" (IMA Fungus); "an in-depth analysis" (Future Micro.)

Nitrogen Cycling in Bacteria

Molecular Analysis

Edited by: JWB Moir

x + 250 pp, July 2011

Hardback: ISBN 978-1-904455-86-8 £159/\$319
"a snapshot of the current understanding" (Book News); "strongly recommended" (Microbiol. Today); "a major reference for many years to come" (ASM Microbe)

Human Pathogenic Fungi

Molecular Biology and Pathogenic Mechanisms

Edited by: DJ Sullivan, GP Moran

c. 380 pp, June 2014

Hardback: ISBN 978-1-908230-44-7 £180/\$360
Ebook: ISBN 978-1-908230-66-9 £180/\$360
An essential reference for students, researchers and clinicians with an interest in fungal pathogenesis!

Applied RNAi

From Fundamental Research to Therapeutic Applications

Edited by: P Arbuthnot, MS Weinberg

c. 260 pp, June 2014

Hardback: ISBN 978-1-908230-43-0 £159/\$319
Ebook: ISBN 978-1-908230-67-6 £159/\$319
RNAi experts critically review the most interesting advances in basic applied RNAi research, highlight the applications in RNAi-based therapies and discuss the technical hurdles that remain.

Halophiles

Genetics and Genomes

Edited by: RT Papke, A Oren

c. 224 pp, May 2014

Hardback: ISBN 978-1-908230-42-3 £159/\$319
Ebook: ISBN 978-1-908230-65-2 £159/\$319
This book highlights current genetics and genomics research on halophilic Archaea and Bacteria and their viruses to provide a timely overview.

Phage Therapy

Current Research and Applications

Edited by: J Borysowski, R Międzybrodzki, A Górski

c. 430 pp, April 2014

Hardback: ISBN 978-1-908230-40-9 £180/\$360
Ebook: ISBN 978-1-908230-74-4 £180/\$360
Full and comprehensive coverage of phage therapy with a focus on current research and emerging applications.

The Cell Biology of Cyanobacteria

Edited by: E Flores, A Herrero

c. 320 pp, May 2014

Hardback: ISBN 978-1-908230-38-6 £159/\$319

Ebook: ISBN 978-1-908230-92-8 £159/\$319

Leading senior scientists and young researchers review the current key topics in cyanobacterial cell biology to provide a timely overview.

Pathogenic Escherichia coli

Molecular and Cellular Microbiology

Edited by: S Morabito

c. 360pp pp, April 2014

Hardback: ISBN 978-1-908230-37-9 £159/\$319

Ebook: ISBN 978-1-908230-99-7 £159/\$319

A timely review of the most recent molecular and cellular biology research on pathogenic *E. coli*. The wider perspective, including considerations on public health and the impact on animal productions, is also discussed.

Campylobacter Ecology and Evolution

Edited by: SK Sheppard

c. 350 pp, April 2014

Hardback: ISBN 978-1-908230-36-2 £159/\$319

Ebook: ISBN 978-1-908230-98-0 £159/\$319

An important resource summarising our current knowledge of *Campylobacter* ecology and evolution. Essential reading!

Burkholderia

From Genomes to Function

Edited by: T Coenye, E Mahenthalingam

c. 248pp pp, February 2014

Hardback: ISBN 978-1-908230-35-5 £159/\$319

Ebook: ISBN 978-1-908230-97-3 £159/\$319

Leading international investigators review key advances in *Burkholderia* research to provide timely overview.

Myxobacteria

Genomics, Cellular and Molecular Biology

Edited by: Z Yang, PI Higgs

c. 240 pp, February 2014

Hardback: ISBN 978-1-908230-34-8 £159/\$319

Ebook: ISBN 978-1-908230-96-6 £159/\$319

The book covers ecology, genomics and cell biology as well as modelling and simulation on topics including motility, development and their associated genetic regulatory networks.

Next-generation Sequencing

Current Technologies and Applications

Edited by: J Xu

xii + 164 pp, March 2014

Hardback: ISBN 978-1-908230-33-1 £120/\$240

Ebook: ISBN 978-1-908230-95-9 £120/\$240

Recent advances in NGS instrumentation, data analysis, current NGS platforms, sequencing chemistries, instrument specifications, general workflows and procedures.

Mollicutes

Molecular Biology and Pathogenesis

Edited by: GF Browning, C Citti

x + 324 pp, January 2014

Hardback: ISBN 978-1-908230-30-0 £159/\$319

Ebook: ISBN 978-1-908230-93-5 £159/\$319

Acknowledged experts critically review the most recent advances in the evolution, genetics and molecular pathogenesis of these important pathogens. An essential book for researchers working with mollicutes.

Genome Analysis

Current Procedures and Applications

Edited by: MS Poptsova

xiv + 374 pp, January 2014

Hardback: ISBN 978-1-908230-29-4 £159/\$319

Ebook: ISBN 978-1-908230-68-3 £159/\$319

An up-to-date and comprehensive overview of next-generation sequencing data analysis, highlighting problems and limitations, applications and developing trends in various fields of genome research.

Bacterial Toxins

Genetics, Cellular Biology and Practical Applications

Edited by: T Proft

viii + 234 pp, August 2013

Hardback: ISBN 978-1-908230-28-7 £159/\$319

Ebook: ISBN 978-1-908230-70-6 £159/\$319

This timely volume is essential reading for everyone with an interest in bacterial toxins and a recommended book for researchers interested in microbial genomics and microbial pathogenesis.

Bacterial Membranes

Structural and Molecular Biology

Edited by: H Remaut, R Fronzes

xii + 500 pp, January 2014

Hardback: ISBN 978-1-908230-27-0 £180/\$360

Ebook: ISBN 978-1-908230-91-1 £180/\$360

A comprehensive overview of the structural and molecular biology of cellular processes that occur at or near bacterial membranes.

Cold-Adapted Microorganisms

Edited by: I Yumoto

x + 226 pp, September 2013

Hardback: ISBN 978-1-908230-26-3 £159/\$319

Ebook: ISBN 978-1-908230-90-4 £159/\$319

Covers the major aspects of biodiversity in cold ecosystems, the physiology and molecular adaptation mechanisms, and the various biomolecules related to cold adaptation. A valuable resource for scientists interested in cold-adapted microorganisms, extremophiles, microbial ecology and environmental microbiology.

Fusarium

Genomics, Molecular and Cellular Biology

Edited by: DW Brown, RH Proctor

viii + 182 pp, August 2013

Hardback: ISBN 978-1-908230-25-6 £159/\$319

Ebook: ISBN 978-1-908230-75-1 £159/\$319

An international group of researchers critically reviews the most important current research on the genomics and molecular and cellular biology of *Fusarium*. Essential for everyone working with this and other filamentous fungi.

Prions

Current Progress in Advanced Research

Edited by: A Sakudo, T Onodera

viii + 134 pp, August 2013

Hardback: ISBN 978-1-908230-24-9 £120/\$240

Ebook: ISBN 978-1-908230-89-8 £120/\$240

Renowned prion experts review the most recent advances to provide a timely and up-to-date overview of the field.