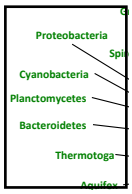
Major new books on: Genome Analysis, Next Generation Sequencing, and Bioinformatics

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

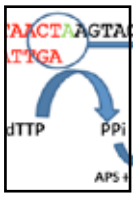
The rapid advancement of sequencing techniques, coupled with the new methodologies of bioinformatics to handle large-scale data analysis, are providing exciting opportunities for us to understand microbial communities from a variety of environments beyond previous imagination.

This book provides invaluable, up-to-date and detailed information on various aspects of bioinformatics data analysis with applications to microbiology. It describes a number of different useful bioinformatics tools, makes links to some wet-lab techniques, explains different approaches to tackle a problem, talks about current challenges and limitations, gives examples of applications of bioinformatics methods to microbiology, and discusses future trends. The chapters include topics such as genome sequencing techniques, assembly, SNP analysis, annotation, comparative genomics, microbial community profiling, metagenomics, phylogenetic microarrays, barcoding and more. Each chapter is written by scientists who are expert in the field, and is peer-reviewed.

An essential book for researchers, lecturers and students involved in microbiology, bioinformatics and genome analysis.

Next Generation Sequencing

Current Technologies and Applications



Edited by: J Xu
c. 150 pp, January 2014
Hardback: ISBN 978-1-908230-33-1 £120/$240
Ebook: ISBN 978-1-908230-95-9 £120/$240

High-throughput, next generation sequencing (NGS) technologies are capable of producing a huge amount of sequence data in a relatively short time and have revolutionized genome research in recent years. The powerful and flexible nature of NGS has made it an indispensable tool for a broad spectrum of biological sciences and NGS technologies have transformed scientific research in many fields.

Written by experts from around the world, this book explores the most recent advances in NGS instrumentation and data analysis. The book begins with a comprehensive description of current NGS platforms, their sequencing chemistries, instrument specifications, and general workflows and procedures. A separate chapter is dedicated to low-quantity, single molecule sequencing technology. Further chapters explore the application of NGS technologies in various fields including polymorphism detection, sRNA research, rare variant detection, large variant detection, exome sequencing, plant development studies, microbial metagenomics, and studies on the human microbiome.

Practical and cutting-edge, this volume represents an excellent collection of chapters to aid all scientists who wish to apply these innovative research tools.

Genome Analysis

Current Procedures and Applications

Edited by: MS Poptsova
c. 370 pp, January 2014
Hardback: ISBN 978-1-908230-29-4 £159/$319
Ebook: ISBN 978-1-908230-68-3 £159/$319

An impressive array of expert authors highlight and review current advances in genome analysis. An invaluable, up-to-date and comprehensive overview of the methods currently employed for next-generation sequencing (NGS) data analysis, highlights their problems and limitations, demonstrates the applications and indicates the developing trends in various fields of genome research. The first part of the book is devoted to the methods and applications that arose from NGS technologies: the identification of structural variation from DNA-seq data; whole-transcriptome analysis and discovery of small interfering RNAs (siRNAs) from RNA-seq data; motif finding in promoter regions, enhancer prediction and nucleosome sequence code discovery from ChiP-Seq data; identification of methylation patterns in cancer from MeDIP-seq data; transposon identification in NGS data; metagenomics and metatranscriptomics; NGS of viral communities; and causes and consequences of genome instabilities. The second part is devoted to the field of RNA biology with the last three chapters devoted to computational methods of RNA structure prediction including context-free grammar applications.

An essential book for everyone involved in sequencing, bioinformatics and genome analysis.

New!!! **See: caister.com**

Other books of interest

Omics in Soil Science

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

Applications of Molecular Microbiological Methods

Edited by: TL Skovhus, et al
c. 200 pp, March 2014
Hardback: ISBN 978-1-908230-31-7 £159/$319
Ebook: ISBN 978-1-908230-69-0 £159/$319

Emerging molecular methods that allow the diversity of a microbial community to be surveyed and its functions to be investigated.

Real-Time PCR

Advanced Technologies and Applications

Edited by: NA Saunders, MA Lee
viii + 284 pp, July 2013
Hardback: ISBN 978-1-908230-22-5 £159/$319
Ebook: ISBN 978-1-908230-87-4 £159/$319

An invaluable reference to a wide-range of real-time PCR technologies and applications and detailed technical insights into the underlying principles, methods and practice of PCR.

"an invaluable reference" (Doodys)

Bionanotechnology

Biological Self-assembly and its Applications

Edited by: BHA Rehm
x + 310 pp, February 2013
Hardback: ISBN 978-1-908230-16-4 £159/$319
Ebook: ISBN 978-1-908230-81-2 £159/$319

"the most striking and successful approaches" Book News

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.)

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)

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 Mahenthiralingam
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.

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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.

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.

RNA Editing
Current Research & Future Trends
Edited by: S Maas
viii + 240 pp, June 2013
Hardback: ISBN 978-1-908230-23-2 £159/$319
Ebook: ISBN 978-1-908230-88-1 £159/$319
"an essential book" (Doodys)

Microbial Efflux Pumps
Current Research
Edited by: EW Yu, Q Zhang, MH Brown
x + 248 pp, June 2013
Hardback: ISBN 978-1-908230-21-8 £159/$319
Ebook: ISBN 978-1-908230-86-7 £159/$319
"does an excellent job" (JAVMA)

Cytomegaloviruses
From Molecular Pathogenesis to Intervention
Edited by: MJ Reddehase
1046 pp, April 2013
Hardback: ISBN 978-1-908230-18-8 £300/$600
Ebook: ISBN 978-1-908230-83-6 £300/$600
"intended for a wide audience" Ref. Res. Book News

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 for scientists interested in oral microbiology, bacterial communities and biofilms

Bacterial Gene Regulation and Transcriptional Networks
Edited by: MM Babu
x + 282 pp, March 2013
Hardback: ISBN 978-1-908230-14-0 £159/$319
Ebook: ISBN 978-1-908230-79-9 £159/$319
The latest research observations and current theories on transcriptional regulation and gene circuits in bacteria.

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.

Neurospora
Genomics and Molecular Biology
Edited by: DP Kasbekar, K McCluskey
x + 294 pp, January 2013
Hardback: ISBN 978-1-908230-12-6 £159/$319
Ebook: ISBN 978-1-908230-77-5 £159/$319
"state-of-the-art review" (IMA Fungus); "a pleasure to read ... belongs in every lab that works on fungi and every academic library" (CIMB)