



Microbial Efflux Pumps

Current Research

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x + 248 (plus colour plates) pp, June 2013

ISBN: 978-1-908230-21-8, \$319/£159

Microbial efflux pumps have important physiological functions, play major roles in bacterial pathogenesis and are widely distributed across diverse bacterial species. A single species may harbour several different types of efflux systems: of these, active efflux has proven to be one of the most successful detoxification mechanisms used by both Gram-positive and -negative pathogens. Compounds extruded include a diverse range of antimicrobials, rendering many almost impotent due to the rapid evolution and spread of antibiotic resistance. Unravelling the intricacies of the microbial efflux systems is essential for the development of new strategies to overcome antimicrobial resistance. This has inspired a plethora of multidisciplinary research projects that have focused on the biochemistry, bioinformatics, structural and molecular biology of this fascinating field. With contributions from leading researchers in the field, this book reviews the most important current research and summarizes the most spectacular discoveries. Essential reading.

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Emerging Trends in Antibacterial Discovery: Answering the Call to Arms

Edited by: Alita A. Miller and Paul F. Miller

viii + 460 pp, August 2011

ISBN: 978-1-904455-89-9, \$360/£180

Respected international experts summarize the most important concepts and pioneering strategies currently being used to develop novel antibacterials. The book opens with chapters on cellular processes that could be used as novel antibacterial targets. Examples include cell division, efflux pumps, metabolite-sensing riboswitches and bacterial secretion systems. These are followed by excellent chapters on the identification of new, naturally occurring antibacterial agents, including phage and biosynthetically engineered compounds. Understanding the host-microbe interaction and microbial communities and how they can be exploited to develop new antibacterial strategies is discussed in subsequent chapters. Other topics included are: antibacterial vaccines adjuvants, host defence peptides, antibodies, within-host models, and diagnostics. A major reference volume on antibacterial research and how it impacts on public health worldwide, the book is essential reading for everyone working in antibacterial research and is a recommended volume for all microbiology libraries.

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Other Books of Interest

Bioremediation of Mercury

Current Research and Industrial Applications

Edited by: Irene Wagner-Döbler
xii + 144 pp, January 2013
ISBN: 978-1-908230-13-3, \$240/£120

Established mercury experts review the latest research in this area, including the genetic engineering of bacteria and plants. The gap between laboratory research and field application is bridged using case studies: An abandoned chlor-alkali electrolysis factory in Kazakhstan, a former PVC plant in Albania, and the Madeira River Basin in the Amazon region. The remaining chapters cover: the mercury-cell process of the chlor-alkali electrolysis industry; a pilot plant for wastewater bioremediation; and a comparison of the efficiency of microbial bioremediation to clean-up three types of industrial wastewater. The book covers the complete range from laboratory scale research to full scale industrial operation and shows a multitude of options for future mercury bioremediation technologies. Essential reading for everyone interested in mercury bioremediation, the book is also recommended reading for environmental microbiologists, chemists and engineers.

Genome Analysis: Current Procedures and Applications

Edited by: Maria S. Poptsova
c. 370 (plus colour plates) pp, January 2014
ISBN: 978-1-908230-29-4, \$319/£159

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.

Real-Time PCR: Advanced Technologies and Applications

Edited by: Nick A. Saunders and Martin A. Lee
c. 300 (plus colour plates) pp, July 2013
ISBN: 978-1-908230-22-5, \$319/£159

Renowned international authors present detailed technical insights into the underlying principles, methods and practice of real-time PCR. The editors also aim to stimulate readers of all levels to develop their own innovative approaches to real-time PCR. An essential book.

Horizontal Gene Transfer in Microorganisms

Edited by: M. Pilar Francino
x + 202 pp, September 2012
ISBN: 978-1-908230-10-2, \$319/£159

Topics include: gene survival in emergent genomes, evolution of prokaryotic pangenomes, horizontal transfer of host-adaptability systems, barriers to horizontal gene transfer, evolution of horizontally transferred genes, lateral gene transfer in natural ecosystems, maintenance of plasmids among bacteria, mobile genetic elements in metagenomes, and the evolution of antibiotic resistance genes. A major resource for anyone interested in horizontal gene transfer, microbial evolution or antibiotic resistance in bacteria.

Two-Component Systems in Bacteria

Edited by: Roy Gross and Dagmar Beier
xii + 426 (plus colour plates) pp, August 2012
ISBN: 978-1-908230-08-9, \$360/£180

The eighteen chapters of this book cover various topics including the structure-function analysis of two-component systems, the sensing mechanisms, essential or atypical two-component systems and signaling networks, two-component systems in stress responses, two-component systems in developmental processes, and two-component systems in virulence and symbiosis. Essential reading for everyone working on bacterial regulation or antimicrobial drug design and a recommended volume for all microbiology libraries.

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