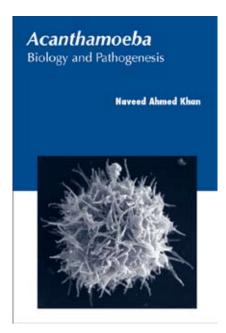
Acanthamoeba Biology and Pathogenesis

Author: Naveed Khan (University of Nottingham, UK)

viii + 290 pp., February 2009 ISBN 978-1-904455-43-1 \$319/£159

Published by: Caister Academic Press www.caister.com

This book provides the first comprehensive review of *Acanthamoeba* research to be published. Everything that is known about *Acanthamoeba* is critically reviewed and divided into easy-to-follow sections. This book presents the current state of research on every aspect of this organism, detailing major advances in areas such as genomics, molecular and cellular biology, life cycles, geographical distribution, role in ecosystem, morphology, motility, phylogenetics, genotyping, metabolism, regulation of morphogenesis, host-parasite interactions, the molecular and immunological basis of pathogenesis, methods of transmission, epidemiology, clinical manifestation, diagnosis, treatment, new target development and drug resistance, as well as its role as a Trojan horse of the microbial world, including viral, bacterial, protozoal and fungal pathogens, and much more. There is a significant emphasis on our knowledge of *Acanthamoeba* infections that has grown in the molecular era. In addition, this book provides a historical perspective on *Acanthamoeba* research that will be of considerable interest.



This compilation will serve as an essential reference for microbiologists, immunologists, and physicians in the field of basic and medical microbiology, as well as an invaluable reference for new and experienced researchers who wish to understand this organism better. This book is the definitive guide to current research on this increasingly important organism.

Table of Contents

www.caister.com

Section A: Biology and Phylogeny

• Introduction • Discovery of Acanthamoeba spp. • Ecology • Ecosystem • Cell biology • Nuclear genome • Mitochondrial genome • Motility • Molecular basis of motility • Acanthamoeba actin • Acanthamoeba myosin

Section B: Life cycle and Genotyping

• Life cycle • What is the best stage in *Acanthamoeba* cell division to induce encystation? • Encystation • Regulators of life cycle • What stimulates encystation? • Feeding • Metabolism • *Acanthamoeba* is a heterotroph (chemo-organotroph) • Isolation of *Acanthamoeba* from the environmental samples • Methods of encystation • Storage • Determination of the viability of trophozoites and cysts • Speciation and genotyping

Section C: Acanthamoeba infections

• Human infections • Acanthamoeba keratitis • Granulomatous amoebic encephalitis • Cutaneous Acanthamebiasis

Section D: Pathogenesis

Acanthamoeba keratitis
 Granulomatous amoebic encephalitis due to Acanthamoeba
 An opportunist with pathogenic potential
 Crossing the biological barriers
 Cornea
 Traversal of the blood-brain barrier
 Direct virulence factors
 Contact-dependent mechanisms
 Indirect virulence factors

Section E: Immune response

• Non-specific immune system • Specific immune system • What are the basic types of parasite immune evasion strategies • Immune response in Acanthamoeba infections • Effect of immune suppressive component in marijuana, cannabinoid delta-9-tetrahydrocannabinol on granulomatous amoebic encephalitis due to Acanthamoeba

Section F: Strategies against Acanthamoeba infections

• Chemotherapeutic agents and *Acanthamoeba* • Membrane-acting agents • Inhibitors of DNA synthesis and polyamine metabolism • RNA synthesis inhibitors • Protein synthesis inhibitors • Tricyclic neuroleptic agents (calmodulin inhibition) • Artesunate • Antimicrobial compounds from natural products • Drug resistance in *Acanthamoeba* • Disinfectants and *Acanthamoeba* • Future prospects for treatment

Section G: Acanthamoeba: Trojan horse of the microbial world

• A host for viruses • A host for yeast • A host for protozoa • Acanthamoeba and bacteria interactions

Section H: Conclusions and Future studies

• A model organism • New approaches in the study of Acanthamoeba • Future research

Section I: Bibliography

Other books of interest

Two-Component Systems in Bacteria

Edited by: R Gross, D Beier c. 410 pp, August 2012

ISBN: 978-1-908230-08-9, \$360/£180 Latest research on structure-function analysis, sensing mechanisms, atypical two-component systems, stress responses, developmental processes, virulence and symbiosis.

Foodborne & Waterborne **Bacterial Pathogens**

Epidemiology, Evolution and Molecular Biology

Edited by: SM Farugue c. 330 pp, July 2012

ISBN: 978-1-908230-06-5, \$319/£159

Review topics such as pathogenic properties, population genetics, virulence genes, evolution, drug resistance, epidemiology, detection, identification and control strategies.

Yersinia

Systems Biology and Control Edited by: E Carniel, BJ Hinnebusch

c. 240 pp, July 2012

ISBN: 978-1-908230-05-8, \$319/£159

Leading Yersinia researchers review the hot topics in the systems biology and control of these important bacteria.

Stress Response in Microbiology

Edited by: JM Requena c. 500 pp, June 2012

ISBN: 978-1-908230-04-1, \$360/£180 Expert authors from around the world summarise the current knowledge on microbial stress response and comprehensively review the recent findings that have greatly advanced the understanding of stress response systems.

Bacterial Regulatory Networks

Edited by: AAM Filloux c. 400 pp, June 2012

ISBN: 978-1-908230-03-4, \$360/£180 Authoritative, up-to-date reviews of the current research and theories on regulatory networks in bacteria. Critical reviews written by the leading research

scientists in the field.

Systems Microbiology

Current Topics and Applications Edited by: BD Robertson, BW Wren

c. 200 pp, June 2012 ISBN: 978-1-908230-02-7, \$319/£159 Cutting-edge reviews by world-leading experts on the systems biology of microorganisms. Includes theoretical approaches, mathematical modelling, case studies on microbial species and the systems analysis of microbial phenomena.

Quantitative Realtime PCR in Applied Microbiology

Edited by: M Filion c. 280 pp, May 2012

ISBN: 978-1-908230-01-0, \$319/£159 Aimed specifically at microbiologists, this volume describes and explains the most important aspects of current realtime quantitative PCR (qPCR) strategies, instrumentation and software.

Bacterial Spores

Current Research and Applications

Edited by: E Abel-Santos c. 300 pp, April 2012

ISBN: 978-1-908230-00-3, \$319/£159

Comprehensive, up-to-date reviews on the current state of our knowledge of bacterial endospores. Essential text for everyone involved in spore research, the expression of recombinant proteins and pathogen detection.

Small DNA Tumour

Viruses

Edited by: K Gaston x + 324 pp, March 2012

ISBN: 978-1-904455-99-8, \$319/£159

Leading scientists from around the world review current hot-topics on small DNA tumour virus research providing a fascinating overview of their molecular biology and interactions with the host.

Extremophiles

Microbiology and Biotechnology

Edited by: RP Anitori

xiv + 300 (colour figures) pp, January 2012 ISBN: 978-1-904455-98-1, \$319/£159

Current and topical areas of extremophile research. The latest insights into the mechanisms these fascinating organisms use to survive and the most recent and novel biotechnological uses of extremophiles.

Bacillus

Cellular and Molecular Biology (2e)

Edited by: P Graumann xii + 398 pp, February 2012

ISBN: 978-1-904455-97-4, \$360/£180 A valuable reference work providing a comprehensive and up-to-date analysis. Critical reviews on the most recent and

topical research.

Microbial Biofilms

Current Research and Applications

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

ISBN: 978-1-904455-96-7, \$319/£159

An up-to-date review of the latest scientific research on microbial communities and a discussion of future trends and growth areas in biofilm-related research.

Bacterial Glycomics

Current Research, Technology and **Applications**

Edited by: CW Reid, SM Twine, AN Reid x + 270 pp, February 2012 ISBN: 978-1-904455-95-0, \$319/£159 Up-to-date overview of our current understanding of bacterial glycomes, the main analytical methods and recent and novel applications.

Non-coding RNAs and **Epigenetic Regulation of** Gene Expression

Drivers of Natural Selection

Edited by: KV Morris x + 216 pp, February 2012

ISBN: 978-1-904455-94-3, \$319/£159

An important and up-to-date overview of the modulation of gene transcription by non-coding RNAs. An essential reference book and a major information resource for those working in the area.

Brucella

Molecular Microbiology and Genomics

Edited by: I López-Goñi, D O'Callaghan x + 262 pp, February 2012 ISBN: 978-1-904455-93-6, \$319/£159 Highly acclaimed Brucella scientists comprehensively review the most important advances in the field. Topics include: genetic diversity, proteomic analysis, transcriptomic analysis, and much more.

Molecular Virology and **Control of Flaviviruses**

Edited by: P-Y Shi x + 358 pp, January 2012

ISBN: 978-1-904455-92-9, \$360/£180

An up-to-date and cutting-edge anthology from the leading experts in the flavivirus field. Essential reading for flavivirus researchers at the graduate level and beyond.

"a valuable resource" (Doodys)

Bacterial Pathogenesis

Molecular and Cellular Mechanisms

Edited by: C Locht, M Simonet x + 370 pp, January 2012

ISBN: 978-1-904455-91-2, \$360/£180

Distinguished scientists comprehensively describe the most relevant and up-to-date information on pathogenic features across the bacterial world.

"useful to those in many areas of research" (Doodys)

FULL DETAILS OF ALL OUR BOOKS AT WWW.CAISTER.COM