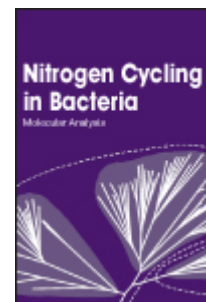


Nitrogen Cycling in Bacteria

Molecular Analysis



Edited by: **James W. B. Moir**

Department of Biology, University of York, Heslington, York YO10 5YW, UK

Published: July 2011. **Pages:** x + 250

Hardback: ISBN 978-1-904455-86-8 £159, \$319

Published by: Caister Academic Press www.caister.com

Microorganisms that convert gaseous nitrogen (N_2) to a form suitable for use by living organisms are pivotal for life on earth. Another set of microbial reactions utilise the bioavailable nitrogen creating N_2 and completing the cycle. This crucial nutrient cycle has long been the subject of extensive research, and recently advances in studying the biochemistry, bioinformatics, cell biology, and the physiology of bacterial nitrogen cycling processes, alongside the advent of the omics age, have had a massive impact, amongst other things, enabling us to fully appreciate the sheer diversity of approaches adapted by individual organisms. Research in this area is at a very exciting stage.

This timely book aims to provide comprehensive reviews of current nitrogen cycle research and to give a broader perspective on the state of our understanding of this key biogeochemical cycle. With contributions from expert authors from around the world, topics covered include: the archaean N-cycle; redox complexes N-cycle; organisation of respiratory chains in N-cycle processes; Mo-nitrogenase; nitrogen assimilation in bacteria; alternative routes to dinitrogen; nitrite and nitrous oxide reductases; assembly of respiratory proteins; nitric oxide metabolism; denitrification in legume-associated endosymbiotic bacteria; nitrous oxide production in the terrestrial environment; bacterial nitrogen cycling in humans. This book will serve as a valuable reference work for everyone working in this field and will also be of interest to researchers studying symbioses, environmental microbiology, plant metabolism, infection events and other prokaryote-eukaryote interactions.

Chapter 1. The Nitrogen Cycle in the Archaeal: An Intricate Interplay of Enzymatic and Abiotic Reactions. *Robert van Lis,*

Anne-Lise Ducluzeau, Wolfgang Nitschke and Barbara Schoepp-Cothenet

Chapter 2. The Redox Complexes of the Nitrogen Cycle. *David Richardson*

Chapter 3. Organisation of Respiratory Electron Transport Chains in Nitrate-Reducing and Nitrifying Bacteria. *Jörg Simon*

Chapter 4. Biochemistry of Mo-Nitrogenase. *John W. Peters, Eric S. Boyd, Trinity Hamilton and Luis M. Rubio*

Chapter 5. Transport and Assimilation of Inorganic Nitrogen in Bacteria. *Conrado Moreno-Vivián, Víctor M.*

Luque-Almagro, Purificación Cabello, M. Dolores Roldán and Francisco Castillo

Chapter 6. Beyond Denitrification: Alternative Routes to Dinitrogen. *Marc Strous*

Chapter 7. Structure, Function, Regulation and Evolution of the Nitrite and Nitrous Oxide Reductases: Denitrification

Enzymes With a Beta-Propeller Fold. *Rob J.M. van Spanning*

Chapter 8. Assembly of Respiratory Proteins of the Nitrogen Cycle. *Shilpa Bali and Stuart J. Ferguson*

Chapter 9. Nitric Oxide Metabolism: Physiology and Regulatory Mechanisms. *Stephen Spiro*

Chapter 10. Denitrification in Legume-associated Endosymbiotic Bacteria. *Cristina Sánchez, Eulogio J. Bedmar and*

María J. Delgado

Chapter 11. Nitrous Oxide Production in the Terrestrial Environment. *Elizabeth M. Baggs and Laurent Philippot*

Chapter 12. Bacterial Nitrogen Cycling in the Human Body. *James W. B. Moir*

Order from:

Caister Academic Press, c/o Book Systems Plus <http://www.caister.com/order>

👉 **MALDI-TOF Mass Spectrometry in Microbiology**

Edited by: Markus Kostrzewa and Sören Schubert (Published: 2016)

👉 ***Aspergillus* and *Penicillium* in the Post-genomic Era**

Edited by: Ronald P. de Vries, Isabelle Benoit Gelber and Mikael Rørdam Andersen (Published: 2016)

👉 **The Bacteriocins: Current Knowledge and Future Prospects**

Edited by: Robert L. Dorit, Sandra M. Roy and Margaret A. Riley (Published: 2016)

👉 **Omics in Plant Disease Resistance**

Edited by: Vijai Bhadauria (Published: 2016)

👉 **Acidophiles: Life in Extremely Acidic Environments**

Edited by: Raquel Quatrini and D. Barrie Johnson (Published: 2016)

👉 **Climate Change and Microbial Ecology: Current Research and Future Trends**

Edited by: Jürgen Marxsen (Published: 2016)

👉 **Biofilms in Bioremediation: Current Research and Emerging Technologies**

Edited by: Gavin Lear (Published: 2016)

👉 **Microalgae: Current Research and Applications**

Edited by: Maria-Nefeli Tsaloglou (Published: 2016)

👉 **Gas Plasma Sterilization in Microbiology: Theory, Applications, Pitfalls and New Perspectives**

Edited by: Hideharu Shintani and Akikazu Sakudo (Published: 2016)

👉 **Virus Evolution: Current Research and Future Directions**

Edited by: Scott C. Weaver, Mark Denison, Marilyn Roossinck and Marco Vignuzzi (Published: 2016)

👉 **Arboviruses: Molecular Biology, Evolution and Control**

Edited by: Nikos Vasilakis and Duane J. Gubler (Published: 2016)

👉 ***Shigella*: Molecular and Cellular Biology**

Edited by: William D. Picking and Wendy L. Picking (Published: 2016)

👉 **Aquatic Biofilms: Ecology, Water Quality and Wastewater Treatment**

Edited by: Anna M. Romaní, Helena Guasch and M. Dolors Balaguer (Published: 2016)

👉 **Alphaviruses: Current Biology**

Edited by: Suresh Mahalingam, Lara Herrero and Belinda Herring (Published: 2016)

👉 **Thermophilic Microorganisms**

Edited by: Fu-Li Li (Published: 2015)

👉 **Flow Cytometry in Microbiology: Technology and Applications**

Edited by: Martin G. Wilkinson (Published: 2015)

["an impressive group of experts" \(ProtoView\)](#)

👉 **Probiotics and Prebiotics: Current Research and Future Trends**

Edited by: Koen Venema and Ana Paula do Carmo (Published: 2015)

👉 **Epigenetics: Current Research and Emerging Trends**

Edited by: Brian P. Chadwick (Published: 2015)

["this is one text you don't want to miss" \(Epigenie\); "up-to-date information" \(ChemMedChem\)](#)

👉 ***Corynebacterium glutamicum*: From Systems Biology to Biotechnological Applications**

Edited by: Andreas Burkovski (Published: 2015)

["Without question a valuable book" \(BIOSpektrum\)](#)

👉 **Advanced Vaccine Research Methods for the Decade of Vaccines**

Edited by: Fabio Bagnoli and Rino Rappuoli (Published: 2015)