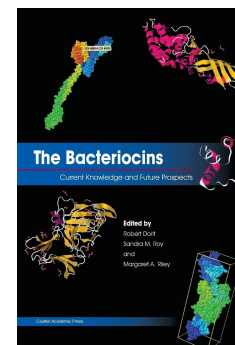


The Bacteriocins

Current Knowledge and Future Prospects



Edited by: Robert L. Dorit, Sandra M. Roy and Margaret A. Riley

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Published: July 2016. **Pages:** xiv + 158

ISBN: Book: 978-1-910190-37-1. Ebook: 978-1-910190-38-8 £159, \$319

Published by: Caister Academic Press www.caister.com

Bacteriocins are potent protein toxins produced by virtually every bacterial and archeal species examined to date. These bactericidal peptides play an important role in regulating competitive interactions in natural microbial systems. From the perspective of human health, the bacteriocins represent a library of potential lead compounds honed over three billion years of evolution. Their narrow target range, high activity, surprising stability and low toxicity position them as viable alternatives or complements to existing small molecule antibiotics. The rise of antibiotic resistant pathogens and the growing awareness of the importance of the microbiome to human health underscore the need for this new class of antimicrobials, emblematic of a new approach to the treatment of infectious disease.

In this volume, a range of experts explore our current understanding of the biology of these important compounds, and identify the prospects for their use in medical and veterinary applications. In so doing, this volume introduces the vast diversity of bacteriocin molecules and mechanisms and brings readers to the cutting edge of a new 21st century approach to antibiotic discovery and design. Topics covered include: the natural history of bacteriocins; killing strategies and applications of microcins; the mode of action of nuclease colicins; the role of the van der Waals zone in the design of a new family of bacteriocins; the use of pyocins in the treatment of infections; the role of streptococcal bacteriocins as oral probiotics; veterinary applications of bacteriocins (nisin) in treating mastitis, and an exploration of the genetics of bacteriocin resistance.

This volume is essential reading for everyone involved in antimicrobial research in academia, biotechnology companies, and the pharmaceutical industry and a recommended volume for all microbiology libraries.

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Chapter 2. Microcins and Other Bacteriocins: Bridging the Gaps Between Killing Strategies, Ecology and Applications (*Sylvie Rebuffat*)

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