

# Microbial Toxins

## Current Research and Future Trends



Edited by: **Thomas Proft**

The Maurice Wilkins Centre for Molecular Biodiscovery and School of Medical Sciences, University of Auckland, New Zealand

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Toxins are important virulence determinants responsible for microbial pathogenicity and/or evasion of the host immune response. Understanding toxin molecular and cellular biology is critical for the development of new anti-toxin strategies, particularly for those with bioterrorism capability. Indeed potential applications of toxin research extend beyond simply combating microbial virulence and include the development of novel anti-cancer drugs and other front-line medicines, use of toxins as tools in neurobiology and cellular biology, etc. This timely volume serves as an update on the most important recent advances. Written by internationally respected scientists, topics reviewed include: toxins carried by mobile genetic elements, botulinum neurotoxins, anthrax, subtilase cytotoxin, *Pasteurella multocida* toxin, RTX toxins of vibrios, *vacA* toxin, staphylococcal immune evasion toxins and fungal ribotoxins.

Essential reading for everyone with an interest in microbial toxins and recommended reading for other scientists with an interest in bioterrorism, microbial pathogenesis, and microbial genomics.

**Chapter 1.** Toxins Carried by Mobile Genetic Elements. *José R Penadés and J. Ross Fitzgerald*

**Chapter 2.** Botulinum Neurotoxins: Structure and Mechanism of Action. *Roshan Kukreja and Bal Ram Singh*

**Chapter 3.** Anthrax Toxin. *Francisco J. Maldonado-Arocho, Kathleen M. Averette-Mirrashidi, and Kenneth A. Bradley*

**Chapter 4.** Subtilase Cytotoxin: A New Bacterial AB5 Toxin Family. *Adrienne W. Paton and James C. Paton*

**Chapter 5.** *Pasteurella multocida* Toxin. *Joachim H.C. Orth*

**Chapter 6.** The Multifunctional-Autoprocessing RTX toxins of Vibrios. *Karla J. F. Satchell and Brett Geissler*

**Chapter 7.** *Helicobacter pylori* VacA Toxin. *Timothy L. Cover and John C. Atherton*

**Chapter 8.** Staphylococcal Immune Evasion Toxins. *Ries J. Langley, Thomas Proft, and John D. Fraser*

**Chapter 9.** Fungal Ribotoxins: Structure, Function and Evolution. *Elías Herrero-Galán, Elisa Álvarez-García, Nelson Carreras-Sangrà, Javier Lacadena, Jorge Alegre-Cebollada, Álvaro Martínez del Pozo, Mercedes Oñaderra, and José G. Gavilanes*

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