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Nota di contenuto	ssociation Between Structure and Toxicity of Enterotoxigenic Escherichia coli (ETEC) -- Heat-Stable Toxin Ib (STa) -- Bacillus anthracis Toxins: Efficient Biochemical Weapons for the Infectious Battle -- Bacterial Genotoxins -- Bacterial Pore-Forming Toxin in Macromolecule Delivery: A Lesson Learned from Listeriolysin O -- Chaperones and ADP-ribosylating Bacterial Toxins -- Clostridium perfringens Epsilon Toxin -- Clostridium perfringens Iota Toxin: A Successfully-Shared Template for Common Enteric Pathogens. -- Colibactin. -- Cyanotoxins -- Escherichia coli Shiga Toxins -- Escherichia coli STb Toxin -- Food Poisoning in Bangladesh -- Glycosphingolipids as Toxin Receptors. Helicobacter pylori CagA: The Bacterial Oncoprotein -- Interaction of Helicobacter pylori VacA Toxin with Its Target Cells -- Membrane Degrading Toxins -- Mode of Action of Cry Toxins from Bacillus thuringiensis and Resistance Mechanisms -- Mycotoxin: Review and Detection -- Overview of Burkholderia pseudomallei Toxins and Clinical Implications -- Role of Bacterial Toxins in Enterotoxemia of Monogastrics and Ruminants -- Role of Clostridium difficile Toxins in Antibiotic Associated Diarrhea and Pseudomembranous Colitis -- Role of Clostridium perfringens Toxins in Necrotic Enteritis in Poultry -- Role of Listeria Monocytogenes Toxins in Virulence -- RTX Toxins: A Review -- Structure Function Studies of Large Clostridial Cytotoxins -- Tetanus and Botulinum Neurotoxins -- Toxins of Staphylococcus aureus: An Arsenal of Complementary

Weapons -- Translocation of Toxins by Gram-Negative Pathogens Using the Type III Secretion System. .

Sommario/riassunto

This volume provides an overview of microbial toxins from diverse bacterial and fungal origins. These molecules, produced by various species and consisting of protein or small organic molecules, can play a pivotal role in pathogenesis of plants, animals, and humans that in turn can lead to the survival/dissemination of the host microbe. Many of these microbes, due to their toxins, impact our society from a health and economic perspective. In particular, this volume address the diverse niches of these organisms focused upon their associated toxins. The structures, functions, and genetics of toxins will be addressed. Besides the ill-effects elicited by these toxins, it must be noted that there is immense potential for turning some of these harmful molecules into useful tools as specific probes (of receptors), novel drugs or drug-conjugates for the treatment of various diseases, and immunomodulating agents for targeted vaccine delivery for research and unique medicines. Recent progress in bacterial genome mapping and establishment of three-dimensional crystal structures of several bacterial toxins provides a deeper knowledge and greater understanding of structure-function relationships. Moreover, the emergence of some bacteria (i.e., *Bacillus anthracis*, *Burkholderia pseudomallei*, *Staphylococcus aureus*), and their toxins, as biological weapons also necessitates a thorough understanding of these agents, their pathophysiology, and development of countermeasures. This volume will also be a common resource for researchers interested in many other medically-relevant microorganisms, and their toxins, that include *Clostridium botulinum*, *C. difficile*, *C. perfringens*, *C. tetani*, *Escherichia coli*, *Helicobacter pylori*, and *Listeria monocytogenes*. Recent studies have correlated the effect of global warming and climate change as a trigger for natural disasters and impact on human health via emergence of various vector-borne and infectious diseases caused by toxin-producing microbes. The 2003 Institute of Medicine (IOM) report, "Microbial Threats to Health," identified the influence of changing ecosystem on the emergence and spread of infectious diseases and economic development of specific regions of the world. This current handbook is a major reference work on microbial toxins written by a panel of International experts and organized into 24 chapters.