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| Descrizione fisica      | 1 online resource (336 p.)  |
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| Soggetti                | Bacterial toxins  |
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| Formato                 | Materiale a stampa  |
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| Note generali           | "With 42 Figures"--Title page.  |
| Nota di bibliografia    | Includes bibliographical references at the end of each chapters and index.  |
| Nota di contenuto       | Bacterial Toxins; Contents; CHAPTER 1 . Cholera Toxin: Mechanism of Action and Potential Use in Vaccine Development; 1.1 Introduction; 1.2 Molecular Aspects of Cholera Toxin Action; 1.2.1 Structure and Relationship to Other Toxins; 1.2.2 Toxin Entry into Cells and Events Leading to Pathogenesis; 1.2.3 Enzymology of Cholera Toxin; 1.2.4 In Vitro Stimulation of Cholera Toxin Activity by ARF; 1.3 Practical Aspects of Cholera Toxin Use; 1.3.1 Vaccine and Vaccine Development; 1.3.2 Cholera Toxin as a Molecular Tool; 1.4 Summary<br>CHAPTER 2 . Cholera Toxin and Escherichia coli Heat-labile Enterotoxin: Biochemical Methods for Assessing Enzymatic Activities<br>2.1 Introduction; 2.2 General Information on CT. LT. ARF and Reagents; 2.2.1 Sources, Purification, and Activation of CTA and LTA; 2.2.2 Sources and Purification of ARF; 2.2.3 Reagents and Materials; 2.2.4 Stock Solutions; 2.3 Assay 1 : The Gsa Assay; 2.3.1 Additional Reagents and Materials Required; 2.3.2 Protocol; 2.4 Assay 2: The Agmatine Assay; 2.4.1 Additional Reagents and Materials Required; 2.4.2 Protocol; 2.5 Assay 3: Auto-ADP-ribosylation Assay |

2.5.1 Additional Reagents and Materials Required; 2.5.2 Protocol; 2.6 Assay 4: NAD Glycohydrolase Assay; 2.6.1 Additional Reagents and Materials Required; 2.6.2 Protocol; 2.7 Comments and Considerations; 2.7.1 Appropriate Controls and Analysis of Data; 2.7.1.1 Controls; 2.7.1.2 Data analysis; 2.7.2 Optimization Interfering Substances, Troubleshooting, and Assay; 2.7.2.1 Interfering substances; 2.7.2.2 Troubleshooting; 2.7.2.3 Assay optimization; 2.7.3 Consideration for the Use of ARF; 2.7.3.1 Lipid/Detergent and Nucleotide Requirements; 2.7.3.2 Development of other Assay Conditions

CHAPTER 3 . Pertussis Toxin 3.1 Introduction; 3.2 Genetic Regulation of Pertussis Toxin Production; 3.3 Biogenesis of Pertussis Toxin; 3.4 Receptor-binding and Translocation; 3.5 ADP-ribosyltransferase Activity and Enzyme Mechanism; 3.6 Biological Activities and Role of Pertussis Toxin in Pathogenesis; CHAPTER 4 . Pertussis Toxin as a Cell Biology Tool; 4.1 Introduction; 4.2 Pertussis Toxin as a Tool to Modify Cellular Functions; 4.2.1 Cell Culture of Bordetella pertussis; 4.2.2 Source of Pertussis Toxin and Preparation of Solution; 4.2.3 Treatment of Mammalian Cell Cultures with Pertussis Toxin; 4.3 Pertussis Toxin as a Tool to Study Cellular Components; 4.3.1 Activation of Pertussis Toxin for in vitro ADP- ribosylation; 4.3.2 Preparation of Cell Homogenates and Fractions; 4.3.3 ADP-ribosylation of Membrane Proteins by Pertussis Toxin; 4.3.4 ADP-ribosylation of Proteins by Pertussis Toxin; 4.3.5 Preparation of Samples for SDS-PAGE; 4.3.6 Cleavage of ADP-ribose from Ga Subunits; 4.4 SDS-Gel Electrophoresis; 4.5 Reagents and Chemicals; CHAPTER 5 . Clostridium botulinum ADP-ribosyltransferase C3; 5.1 Introduction; 5.2 The Family of C3-like Transferases

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## Sommario/riassunto

This is a survey of well characterized and recently discovered bacterial protein toxins. Leading investigators of the respective toxins review the various molecular mechanisms of action, ranging from toxin-induced ADP-ribosylation up to membrane perforation by pore-forming toxins. They also describe the consequences on host physiology before focusing on potential applications as cell biological and pharmacological tools for research and medical applications. Detailed descriptions of the methodology include the engineering and use of modified and chimeric toxins for better performance. A soli

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