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Nota di contenuto	Table of Contents; Chapter 1. Receptor-related Risk Factors for Verotoxin Pathogenesis; Verotoxins and their receptors; Receptor glycolipid; B subunit receptor-binding sites; VT signalling and internalization; Cholesterol masking of VT receptors; New model for VT subunit pentamer binding plasma membrane Gb3; Cholesterol is key for VT-Gb3 retrograde transport; Regulation of Gb3 biosynthesis; Soluble GSL mimics; Conclusions; References; Chapter 2. The Helicobacter pylori CagA Protein: A Multifunctional Bacterial Toxin Delivered by Type IV Secretion; Introduction The cag pathogenicity island and its effector protein CagA The Cag type IV secretion system as a toxin delivery system; CagA interaction partners and associated effects in host cells; Conclusions; Chapter 3. Pore-forming Toxins; Introduction; Introduction to Staphylococcus aureus -haemolysin; Nomenclature and early observations; Primary structure and regulation of toxin production; Three-dimensional structure and function; Role in disease pathogenesis; Summary and future perspectives - -toxin Introduction to the cholesterol-dependent cytolysins and membrane attack complex/perforin (MACPF) family proteins General features of the CDC primary structure; The CDC monomer crystal structure; Secretion of the CDCs; Cellular recognition; The CDC membrane anchoring system; The CDC allosteric pathway; Formation of the prepore oligomer; Formation of the pore complex; Ring versus arc oligomers;

The CDCs and bacterial pathogenesis; The membrane attack complex/perforin (MACPF) proteins; Summary and future perspectives - CDCs and MACPF proteins; References

Chapter 4. Bacterial Enterotoxins as Immunomodulators and Vaccine Adjuvants Introduction; Cholera toxin: the prototype for ADP-ribosylating holotoxin adjuvants; LT: a more complex family of holotoxin adjuvants; Are ADP-ribosylating toxins in general good adjuvants?; Taking toxin adjuvant immunomodulation one step further; Concluding remarks; References; Chapter 5. Mobile Genetic Elements as Carriers for Bacterial Virulence Genes; Core and adaptive genome; The mobile bacterial genome; Mobile genetic elements and their role in virulence; Why MGEs encode exotoxins and other virulence factors? Role of SOS induction Bacteriophage-encoding toxins and other virulence factors; Plasmids encoding toxins; Pathogenicity islands encoding toxins; Open questions; Web resources; References; Chapter 6. The Staphylococcal Superantigen-like Toxins; Introduction; The SSLs - an introduction; Genetics of the ssls; Molecular biology of the SSLs; SSL-related *S. aureus* immune evasion molecules; Mechanisms of immune evasion mediated by SSLs; Novel SSL-associated applications; Concluding remarks; References; Chapter 7. Botulinum Neurotoxins as Therapeutics; Introduction  
Mechanistic basis of BoNTs as therapeutics

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### Sommario/riassunto

Toxins are virulence determinants that play an important role in microbial pathogenicity and/or evasion of the host immune response. This makes them ideal targets for the development of novel antimicrobial strategies. The potential applications of toxin research extend beyond simply combating microbial pathogens, and include use as novel anti-cancer drugs and other front-line medicines and as tools in neurobiology. In the field of cellular biology, toxins have become invaluable as tools for the manipulation and investigation of fundamental cellular and physiological processes. Research in this

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