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Nota di contenuto	Contents; Contributors; Foreword; 1: Diarrhoeagenic Escherichia coli Infections in Humans; Introduction; Enteropathogenic E. coli (EPEC); Enterotoxigenic E. coli (ETEC); Enteroinvasive E. coli (EIEC); Enteroaggregative E. coli (EAaggEC); Diffusely adherent E. coli (DAEC); Shiga toxin-producing E. coli (STEC) or verocytotoxin-producing E. coli (VTEC); 2: Pathogenic Escherichia coli in Domestic Mammals and Birds; Classification of pathogenic Escherichia coli; Diarrhoeagenic Escherichia coli; Enterotoxaemic Escherichia coli; Extraintestinal Escherichia coli; Concluding remarks 3: Genomic Plasticity and the Emergence of New Pathogenic Escherichia coliIntroduction; Genome structure of extraintestinal and intestinal pathogenic E. coli; Mobile elements; Genome alterations during human infections - a model of real-time pathogen evolution; 4: Shiga Toxin-encoding Phages: Multifunctional Gene Ferries; General overview on Stx-phages; History and general description of Stx-phages; Diversity of Stx-phages; Genome structure of Stx-phages; Structure of the stx region; Stx-phage induction and its role in Stx production; Stx transduction and the emergence of new pathogens New pathogenic serotypes, outbreaks in Norway and GermanyThe

impact of multiple Stx-phages in the same genome; Stx2-phages in the environment, difficulties to evaluate the presence of lytic Stx2-phages; Biological impact of Stx-phages; Conclusions; 5: Shiga Toxins; Discovery of Shiga toxins; Genetic and environmental regulation of Shiga toxin production; Shiga toxin structure; Shiga toxin receptor(s); Toxin internalization and retrograde transport; Retro-translocation; Shiga toxin-induced apoptosis; Inhibition of protein synthesis and intoxication; Shiga toxin-induced cytokine synthesis Pathophysiology of organ damage Intervention strategies; Biomedical applications of Shiga toxins; Conclusions and future directions; 6: Escherichia coli Subtilase Cytotoxin: Structure, Function and Role in Disease; Introduction; Biological characterization; Cytotoxic mechanism; Receptor binding; Intracellular trafficking; Strain distribution of SubAB and identification of allelic variants; Pathological features and immune modulation; Role in disease; Conclusions; 7: Cell Cycle Modulating Toxins Produced by Escherichia coli; Cytotoxic necrotizing factor (CNF); Cytolethal distending toxins Cycle inhibiting factors (Cif) Colibactin; Conclusion; 8: The Heat-stable and Heat-labile Enterotoxins Produced by Enterotoxigenic Escherichia coli; Introduction; Heat-stable enterotoxin; Heat-labile enterotoxin; Conclusion; 9: Haemolysins; The HlyA protein; HlyA mechanism of action; HlyA role in virulence; Extracellular export of HlyA; Post-translational modification of HlyA; Genetics and regulation of hlyA expression; The EHEC haemolysin; The EHEC-Hly gene locus, its conservation and regulation; EHEC-Hly mechanism of action and role in pathogenesis; The ClyA (SheA, HlyE) protein Mechanism of action of ClyA

Sommario/riassunto

In recent years, a great deal of knowledge has accumulated on the features associated with the virulence of pathogenic E. coli. A large number of virulence genes have been identified and their products characterized. Great strides have been made in the understanding of the pathogenic mechanisms and the bacterium-host interaction. However, much remains elusive in the understanding of pathogenicity at a cellular and sub-cellular level. This is largely due to E. coli genome's plasticity: it generates great variability and facilitates the rapid emergence of new pathogenic variants. Elucidating the
