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Nota di contenuto	Contents; Contributors; Current books of interest; Preface; 1: The Contentious Taxonomy of Mollicutes; Paths to the present; Current controversies; Genome sequence-based taxonomy: a path to the future?; 2: Genomic Mosaics; The Mollicutes in the era of genomics; General features of Mycoplasma genomes; The impact of horizontal gene transfer on Mycoplasma genomics; Conclusions; 3: Molecular Genetic Tools for Mollicutes; Introduction; Transformation of Mollicutes; Random mutagenesis through transposition; Targeted mutagenesis through homologous recombination; Production of unmarked mutations Vectors for gene expression/disruption in Mollicutes Gene expression in Mollicutes; Discussion; 4: Identification and Characterization of Virulence Genes in Mycoplasmas; Introduction; Adhesins; Invasion; Toxin production; Mimicry; Immune evasion; Immunostimulation; Immunosuppression; Multifunctional proteins; Protein secretion; Scavenging complex nutrients; Other virulence factors; Regulation of

virulence genes; Challenges for the future; 5: Post-translational Modification of Proteins in the Mollicutes; Introduction; Post-translational protein processing plays a key role in protein secretion  
Signal sequences are critical for trafficking proteins to secretion pathways  
Are signal sequences removed from secreted mycoplasma proteins?; Signal sequences are removed from secreted proteins in *Mycoplasma pneumoniae*; Evidence that proteins are subject to endoproteolytic cleavage in *Mycoplasma pneumoniae*; Signal sequences are not removed during secretion of large mass adhesins in *Mycoplasma hyopneumoniae*; Why are adhesins targets of endoproteolytic cleavage?; Processing of lipoproteins; Endoproteolytic processing in *Mycoplasma gallisepticum*; Protein phosphorylation and acetylation

6: Multifunctional Cytoadherence Factors  
Introduction; Cytoadherence factors; Non-proteinaceous cytoadherence factors with multiple functions; Membrane proteins as cytoadhesins; Cytoadhesins that are variable in phase, size and antigenicity; Cytoadhesins that help to move; Immune evasion; MSCRAMMs; Mimicry; Secreted cytoadhesins; Moonlighting cytoadhesins; Vice versa: cytoplasmic factors with cytoadhesive functions; 7: The Glycocalyx of Mollicutes; Introduction; Capsule; Polysaccharides; Glycoproteins; Glycolipids; Glycoconjugate synthesis machinery; Summary

8: Glycosidase Activity in Mollicutes  
Introduction; Virulence-associated glycosidases in Mycoplasmas; Putative roles in cellular biology or disease processes of mycoplasmas; Acquisition, diversity and evolutionary fitness; Therapeutic potential; 9: Current Insights into Phase and Antigenic Variation in Mycoplasmas; Introduction; Genetic mechanisms of *Mycoplasma* phase and antigenic variation at glance; Genetic events mediating phase and antigenic variation in selected *Mycoplasma* species; Biological role and significance of mycoplasma surface antigenic variation; Outlook and future perspectives

10: Spiroplasma Transmission from Insects to Plants

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## Sommario/riassunto

Mollicutes are a class of simple bacteria characterized by the lack of a bacterial cell wall and their very small genomes (580 kb to 2200 kb). This phylogenetically coherent group contains a broad range of different plant and animal pathogens, making it an ideal model for understanding gene function, gene regulation, and the evolution of virulence factors in other bacterial pathogens. The recent development of improved tools for manipulating mollicute genomes has transformed research in this area, permitting new insights into mollicute molecular and cellular biology. An interesting fact to emerge

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