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Nota di contenuto	Contents; Current books of interest; Contributors; Foreword; Preface; Part I: Mechanisms of Evolution; 1: A Candidate Hopeful Monster in the Genus Campylobacter; Introduction; Hybridization by horizontal gene transfer; 2: Learning About Recombination in Campylobacter; Introduction; Estimating recombination from population data; Estimating recombination from closely related isolates; Discussion; 3: Within-host Evolution of Campylobacter jejuni; Introduction; Phenotypic changes of Campylobacter jejuni after host passage; Genotypic changes of Campylobacter jejuni during host passage; Conclusions Future studies4: Concerted Evolution in Campylobacter jejuni and Campylobacter coli; Concerted evolution; Duplicated genes in Campylobacter; Unresolved questions; 5: Genome and Transcriptome Evolution in the Genus Campylobacter; Introduction; Characteristics of Campylobacter genome sequences; Transcriptome evolution in the genus Campylobacter; Conclusions; 6: Repetitive DNA: A Major Source of Genetic Diversity in Campylobacter Populations?; Introduction; Types, prevalence and mutability of SSRs in Campylobacter genomes; Variation in SSRs has functionally important phenotypic effects Combinatorial consequences of multiple phase-variable genesInfluence of mutational, selective and population forces on the diversity of

phase-variable genotypes; Modelling phase-variable genes and selection for mutational rates; Experimental issues connected with phase variation; Summary; Future perspectives; Part II: Adaptations to Host Colonization; 7: Campylobacter Strategies for Colonizing the Host Gastrointestinal Tract; Introduction; Carbon sources utilized by Campylobacter to support growth in vivo; Mucins and the mucous layer; Conclusions and future trends

8: The Intricate Relationship Between Campylobacter and Mucus The structure and function of intestinal mucus; The ecology of *C. jejuni* in intestinal mucus; Mucus as a source of glycans; Campylobacter jejuni commensalism in chickens; Conclusions and future directions; 9:

Campylobacter Association with the Human Host; Introduction; Adhesion, invasion and translocation; Bacterial factors influencing adhesion and invasion of *C. jejuni*; Do all campylobacters invade to the same extent?; Conclusion; 10: Siderophore-mediated Iron Acquisition for Campylobacter Infection; Introduction

Iron sources in the intestine: an ecological view Enterobactin-mediated iron acquisition; Salmochelin-mediated iron acquisition; Hydroxamate siderophore-mediated iron acquisition; Conclusion and future

directions; 11: Genetic Mechanisms Involved in Campylobacter jejuni Survival Under Oxidative Stress Conditions; The *C. jejuni* survival conundrum; Oxidative stress overview; *C. jejuni* mechanisms for countering oxidative stress; Oxidative stress regulation in *C. jejuni*;

Discussion and future perspectives; 12: Oxidative Stress Survival During Campylobacter Transmission and Infection

Campylobacter jejuni transmission and aerotolerance

Sommario/riassunto

Members of the genus *Campylobacter* are commonly found in the gastrointestinal tract of mammals and birds, and can be commensal or pathogenic in nature. For example, *Campylobacter jejuni* can be a harmless commensal organism in poultry and other avian and animal hosts, but in humans, it is pathogenic and the most common cause of bacterial gastroenteritis worldwide. In recent years, the application of DNA sequencing and 'omics' technologies to large numbers of isolates has allowed *Campylobacter* research to advance rapidly, revealing fascinating new insights into the cellular biology and evolution
