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Nota di contenuto	Contents; Contributors; Preface; 1: Ecology and Evolution of Haloquadratum walsbyi Through the Lens of Genomics and Metagenomics; Introduction; The ecology of solar saltern crystallizer; Haloquadratum walsbyi: the uncultivable species; Unveiling the extent of intragenomic diversity in Haloquadratum walsbyi; Metagenomic islands; Interactions between Haloquadratum walsbyi and other species in the crystallizer pond; The metagenomic insight into predator-prey interplay in aquatic environments; The 'Constant diversity' dynamics model; Conclusion 2: Salinibacter ruber: The Never Ending Microdiversity? Introduction; Abundance and distribution revisited; Microdiversity and recombination; Inter-domain (Archaea-Bacteria) lateral gene transfer: archaeal genes in Salinibacter ruber genomes; The power of metabolomics to explore phenotypic microdiversity; Future trends; 3: Horizontal Gene Transfer in Halobacteria; Introduction; Mechanisms of horizontal gene transfer; Mechanisms of horizontal gene transfer in Halobacteria; Evidence for horizontal gene transfer in Halobacteria from single gene studies The origins of the Halobacteria may be rooted in horizontal gene transfer Homologous recombination within and between Halobacterial lineages; Geographic isolation and barriers to recombination; 4: Comparative Genomics of Haloarchaeal Viruses; Introduction;

Haloarchaeal versus prokaryotic viruses; Infection cycle; Related or not related, that's the problem; The influence of viral genes on their hosts; Haloarchaeal viruses; Conclusions and future prospects; 5: Microbial Adaptation to Saline Environments: Lessons from the Genomes of Natranaerobius thermophilus and Halobacillus halophilus
IntroductionThe anaerobic polyextremophile Natranaerobius thermophilus; The aerobic moderately halophilic Halobacillus halophilus; Synopsis; 6: Staying in Shape: The Haloarchaeal Cell Wall; Introduction; Structure of haloarchaeal surface (S)-layers; Haloarchaeal S-layer glycoproteins; Glycosylation of haloarchaeal S-layer glycoproteins; Modulation of haloarchaeal S-layer glycoprotein N-glycosylation as an adaptive response; Lipid-modification of haloarchaeal S-layer glycoproteins; The cell envelope of the square haloarchaeon, Haloquadratum walsbyi
Does the haloarchaeal cell envelope include a periplasmic space?The heteropolysaccharide cell walls of Halococcus morrhuae and Natronococcus occultus; Future trends; 7: Cell Cycle and Polyploidy in Haloarchaea; Introduction; The cell cycle of Halobacterium salinarum; Regulated polyploidy in haloarchaea; Evolutionary advantages of haloarchaeal polyploidy; Gene conversion and escape from 'Muller's ratchet'; Conclusions and outlook; 8: Cell Regulation by Proteolytic Systems and Protein Conjugation; Introduction; Intramembrane proteolysis; Energy-dependent proteases
Targeting proteins for proteolysis

Sommario/riassunto

Extreme halophilic environments - including salt lakes and springs, seawater evaporation facilities for the production of sea salt, and subterranean salt deposits derived from ancient oceans - are distributed patchily all over the world. The life that dominates them is microbial (e.g., prokaryotes and the viruses that infect them). The best studied in these environments are the haloarchaea (family Halobacteriaceae), a diverse group of salt-loving organisms in the archaeal phylum Euryarchaeota. These remarkable organisms have an obligate requirement for salt concentrations between 10% and 35% N
