

1. Record Nr.	UNINA9910279745003321
Autore	Sonea Sorin
Titolo	Prokaryotology : a coherent point of view // Sorin Sonea & Leo G. Mathieu
Pubbl/distr/stampa	Presses de l'Université de Montréal, 2000 Montreal, [Quebec Province] : , : Les Presses de l'Universite de Montreal, , 2000 ©2000
ISBN	979-1-03-651369-5 2-7606-2329-7
Descrizione fisica	1 online resource (106 p.)
Disciplina	579.3
Soggetti	Prokaryotes Prokaryotes - Genetics Bacteria - Evolution
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	<p>""CONTENTS""; ""FOREWORD""; ""CHAPTER I: UNEVEN DEVELOPMENT OF THE SCIENCE OF BACTERIOLOGY""; ""1. The importance of pathogenic bacteria in the early developments of bacteriology""; ""2. Progressive discovery of solidarity among prokaryotes""; ""a) Mixed communities with division of labor""; ""b) Horizontal gene exchanges""; ""3. Modifying the old concept of bacteria""; ""4. Changes in the perception of prokaryotes' evolution""; ""5. Discovery of the Archaeobacteria (Archaea)""; ""6. The prokaryotic world: a unified and essential element of life on our planet""</p> <p>""7. Many biologists are not sufficiently aware of the unique characteristics of the prokaryotic world""""CHAPTER II: MAJOR CHARACTERISTICS OF THE PROKARYOTIC WORLD""; ""1. Prokaryotic cell structure and functions""; ""a) The cell wall of prokaryotes""; ""b) The prokaryotic plasmic (inner) membrane is a multi-purpose organ""; ""c) Prokaryotic ribosomes differ from those of eukaryotes""; ""d) Capsules and glycocalyxes""; ""e) DNA in the prokaryotic cell""; ""f) Prokaryotic spores are a survival form of extraordinary resistance""</p>

""2. Dominant role of generalized solidarity in the life of prokaryotes""  
a) Mutually-supportive associations among different prokaryotic cells in local communities""; ""b) Scope and importance of gene exchanges between different prokaryotic cells: A general way of solving problems and adapting to temporary changes""; ""3. The prokaryotic entity forms one planetary biologic system or superorganism""; ""CHAPTER III: ORIGINAL, NON-DARWINIAN EVOLUTION OF PROKARYOTES""; ""1. Ways in which errors in the division of the earliest cells could be prevented or compensated for""  
""2. Variety and diversification inside the early prokaryotic clone""""3. Prokaryotic cells evolved together towards both high specialization and complementarity""; ""4. The appearance of the prokaryotic cell wall and of transformation""; ""5. Small replicons became the most efficient basic elements of a prokaryotic global communication system""; ""6. The prokaryotic superorganism (or biologic system) as a unique type of clonal entity; there are no prokaryotic species""; ""7. Role of prokaryotes in the origin and subsequent evolution of eukaryotes""  
""8. The prokaryotes started as and remain the most influential biological factor in the development and the maintenance of our biosphere""""CONCLUSION""; ""REFERENCES""; ""INDEX""; ""A""; ""B""; ""C""; ""D""; ""E""; ""F""; ""G""; ""H""; ""I""; ""K""; ""L""; ""M""; ""N""; ""O""; ""P""; ""R""; ""S""; ""T""; ""V""; ""X""

---

## Sommario/riassunto

Prokaryotes are profoundly original, highly efficient microorganisms that have played a decisive role in the evolution of life on Earth. Although disjunct, taken together their cells form one global superorganism or biological system. One of the results of their non-Darwinian evolution has been the development of enormous diversity and bio-energetic variety. Prokaryotic cells possess standardized mechanisms for easy gene exchanges (lateral gene transfer) and they can behave like receiving and broadcasting stations for genetic material. Ultimately, the result is a global communication system based on the prokaryotic hereditary patrimony, by analogy, a two-billion-year-old world wide web for their benefit. Eukaryotes have evolved from the association of at least three complementary prokaryotic cells, and their subsequent development has been enriched and accelerated by symbioses with other prokaryotes. One of these symbioses was responsible for the origin of vascular plants which transformed vast sections of the continental surface of the Earth from deserts to areas with luxuriant, life-supporting vegetation. All forms of life on our planet are directly or indirectly sustained and enriched by the positive contribution of prokaryotes. Sorin Sonea and Léo G. Mathieu have been professors at the Department of Microbiology and Immunology (Faculty of Medicine) at the Université de Montréal. They have long been advocates of the ideas presented in this book.

---