

*MICROBIAL  
PHYLOGENY  
AND EVOLUTION*



CONCEPTS AND CONTROVERSIES

EDITED BY

— *JAN SAPP* —

# Microbial Phylogeny And Evolution Concepts And Controversies

**SJ Ball**



## **Microbial Phylogeny And Evolution Concepts And Controversies:**

**Microbial Phylogeny and Evolution** Jan Sapp, 2023 The extent of lateral gene transfer amongst diverse microbes is raising doubt as to the applicability of the concept of species in the microbial world Leading microbial evolutionists discuss phylogeny evolutionary theory in the light of the latest discoveries Microbial Phylogeny and Evolution Jan Sapp, 2005-03-03 The birth of bacterial genomics since the mid 1990s brought with it several conceptual modifications and wholly new controversies Working beyond the scope of the neo Darwinian evolutionary synthesis a group of leading microbial evolutionists addresses the following and related issues often with markedly varied viewpoints Did the eukaryotic nucleus cytoskeleton and cilia also originate from symbiosis Do the current scenarios about the origin of mitochondria and plastids require revision What is the extent of lateral gene transfer between species among bacteria Does the rDNA phylogenetic tree still stand in the age of genomics Is the course of the first 3 billion years of evolution even knowable *Environmental and Microbial Relationships* Christian P. Kubicek, Irina S. Druzhinina, 2007-09-20 This volume provides insight into current research on fungal populations and communities It focuses on fungal responses to the physical environment interactions with other fungi microorganisms and invertebrates the role of fungi in ecosystem processes such as decomposition and nutrient cycling and aspects of biogeography and conservation The second edition has been completely updated and revised to accommodate the introduction of molecular methods and the flood of new findings since then *The New Foundations of Evolution* Jan Sapp, 2009-07-24 This is the story of a profound revolution in the way biologists explore life's history understand its evolutionary processes and reveal its diversity It is about life's smallest entities deepest diversity and greatest cellular biomass the microbiosphere Jan Sapp introduces us to a new field of evolutionary biology and a new brand of molecular evolutionists who descend to the foundations of evolution on Earth to explore the origins of the genetic system and the primary life forms from which all others have emerged In so doing he examines from Lamarck to the present the means of pursuing the evolution of complexity and of depicting the greatest differences among organisms The New Foundations of Evolution takes us into a world that classical evolutionists could never have imagined a deep phylogeny based on three domains of life and multiple kingdoms and created by mechanisms very unlike those considered by Darwin and his followers Evolution by leaps seems to occur regularly in the microbial world where molecular evolutionists have shown the inheritance of acquired genes and genomes are major modes of evolutionary innovation Revisiting the history of microbiology for the first time from the perspective of evolutionary biology Sapp shows why classical Darwinian conceptions centering on questions of the origin of species were forged without a microbial foundation why classical microbiologists considered it impossible to know the course of evolution and classical molecular biologists considered the evolution of the molecular genetic system to be beyond understanding In telling this stirring story of scientific iconoclasm this book elucidates how the new evolutionary biology arose what methods and assumptions underpin it and the fiery controversies that continue to shape biologists

understanding of the foundations of evolution today      **Genome Evolution of Photosynthetic Bacteria** ,2013-03-08  
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