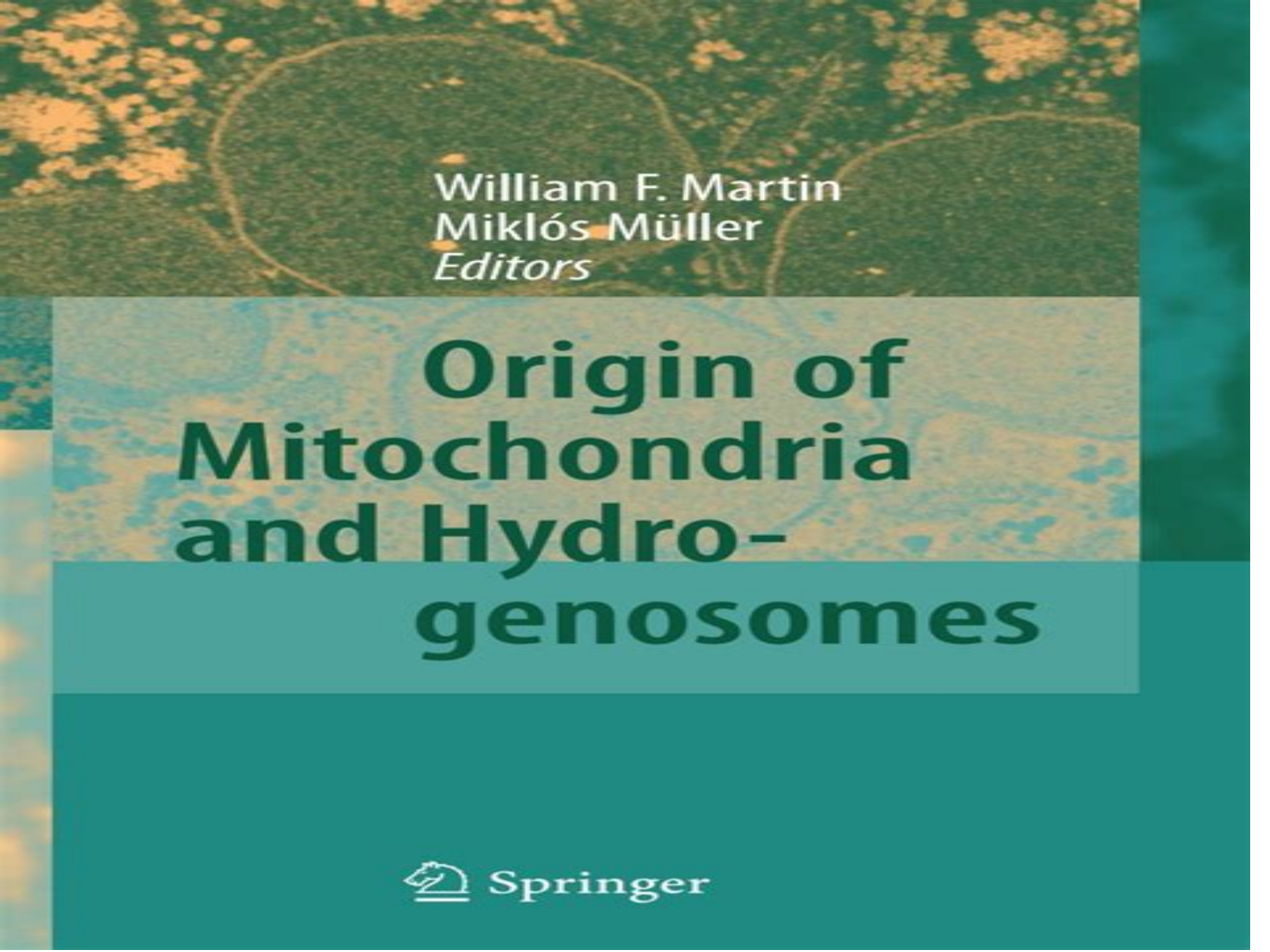




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Origin of Mitochondria and Hydro- genosomes

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Mitochondria and Anaerobic Energy Metabolism in Eukaryotes William F. Martin, Aloysius G. M. Tielens, Marek Mentel, 2020-12-07 Mitochondria are sometimes called the powerhouses of eukaryotic cells because mitochondria are the site of ATP synthesis in the cell ATP is the universal energy currency it provides the power that runs all other life processes Humans need oxygen to survive because of ATP synthesis in mitochondria The sugars from our diet are converted to carbon dioxide in mitochondria in a process that requires oxygen Just like a fire needs oxygen to burn our mitochondria need oxygen to make ATP From textbooks and popular literature one can easily get the impression that all mitochondria require oxygen But that is not the case There are many groups of organisms known that make ATP in mitochondria without the help of oxygen They have preserved biochemical relicts from the early evolution of eukaryotic cells which took place during times in Earth history when there was hardly any oxygen available certainly not enough to breathe How the anaerobic forms of mitochondria work in which organisms they occur and how the eukaryotic anaerobes that possess them fit into the larger picture of rising atmospheric oxygen during Earth history are the topic of this book

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Hackstein,2010-09-08 This updated monograph deals with methanogenic endosymbionts of anaerobic protists in particular ciliates and termite flagellates and with methanogens in the gastrointestinal tracts of vertebrates and arthropods Further chapters discuss the genomic consequences of living together in symbiotic associations the role of methanogens in syntrophic degradation and the function and evolution of hydrogenosomes hydrogen producing organelles of certain anaerobic protists Methanogens are prokaryotic microorganisms that produce methane as an end product of a complex biochemical pathway They are strictly anaerobic archaea and occupy a wide variety of anoxic environments Methanogens also thrive in the cytoplasm of anaerobic unicellular eukaryotes and in the gastrointestinal tracts of animals and humans The symbiotic methanogens in the gastrointestinal tracts of ruminants and other methanogenic mammals contribute significantly to the global methane budget especially the rumenhosts an impressive diversity of methanogens This makes this updated volume an interesting read for scientists and students in Microbiology and Physiology Human Emerging and Re-emerging Infections Sunit Kumar Singh,2015-11-09 Emerging and re emerging pathogens pose several challenges to diagnosis treatment and public health surveillance primarily because pathogen identification is a difficult and time consuming process due to the novel nature of the agent Proper identification requires a wide array of techniques but the significance of these diagnostics is anticipated to increase with advances in newer molecular and nanobiotechnological interventions and health information technology Human Emerging and Re emerging Infections covers the epidemiology pathogenesis diagnostics clinical features and public health risks posed by new viral and microbial infections The book includes detailed coverage on the molecular

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Microbial Diversity Oladele Ogunseitan, 2008-04-15 This book offers the first comprehensive in depth treatment of microbial diversity for undergraduate and graduate students Using a global approach Microbial Diversity illustrates the impact of microorganisms on ecological and Earth system phenomena Accompanied by a devoted website with resources for both instructors and students www.blackwellpublishing.com/ogunseitan Uses key ecological and global phenomena to show the continuity of microbial contribution Illustrates the importance of microbial diversity for the understanding of global physiochemical and biological processes Presents analyses of microscopic culture molecular and phylogenetic systematic methods Shows the relevance of microbial diversity to global environmental problems such as climate change and ozone depletion Features numerous illustrations including over 60 4 color photographs of microbes

Progress in Botany Joachim W. Kadereit, 2013-11-11 With one volume each year this series keeps scientists and advanced students informed of the latest developments and results in all areas of the plant sciences The present volume includes reviews on genetics cell biology physiology comparative morphology systematics ecology and vegetation science

Chloroplasts and Mitochondria John Frederick Allen, Uta Frith, Elisabeth L. Hill, John A. Raven, 2002

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

Biology of Parasitism Christian Tschudi, Edward J. Pearce, 2013-03-14 Biology of Parasitism is based on the Biology of Parasitism Course at the Marine Biological Laboratory in Woods Hole Massachusetts Having just celebrated its 20th offering this Course has distinguished itself as the premier world renowned training ground for future generations of parasitologists The primary goal of the Course is to attract and introduce the very best and most promising young researchers to the many unresolved problems in parasitology and prepare them for their future as independent investigators in the field The rigorous program combines state of the art laboratory research with a program of visiting lecturers who bring together the most current research in the field Since at this time there are no academic institutions that have enough depth in parasitology research or teaching faculty to provide up to date and state of the art training the Course has become and will remain a global resource for providing intensive education in modern parasitology Biology of Parasitism is intended to present a snapshot of the content and spirit of the Biology of Parasitism Course By presenting a series of chapters that reflect the formal lectures that students receive on a daily basis as well as the approaches used during the laboratory section of the Course the editors hope to share some of the science that occurs there One part of the book presents the experimental component of the Course in particular the subject matter of the four two week sessions covering Immunology Biochemistry Cell Biology and Molecular Biology of protozoan and helminth parasites As in the Course the experimental part is complemented by a number of review like chapters solicited from the large number of speakers who lecture during the Course

International Review of Cytology Kwang W. Jeon, 2005-07-25 International Review of Cytology presents current advances and comprehensive reviews in cell biology both plant and animal Authored by some of the foremost scientists in the field each volume provides up to date information and directions for future research Articles in this volume address Plastid RNA polymerases promoters and transcription regulators in higher plants Maintenance of Golgi Apparatus Structure in the Face of Continuous Protein Recycling to the ER Making Ends Meet Nucleocytoplasmic trafficking in plant cells Building in vitro models of organs Mitochondria driven organelles in protists and fungi The flagellum of trypanosomes and Regulation of growth and differentiation in Dictyostelium

Respiration in Archaea and Bacteria Davide Zannoni, 2008-01-20 The book summarizes the achievements of the past decade in the biochemistry bioenergetics structural and molecular biology of respiratory processes in selected genera of the domain Bacteria along with an extensive coverage of the redox chains of extremophiles belonging to the Archaeal domain The volume is a unique piece of work since it contains a series of chapters dealing with metabolic features having important microbiological and ecological relevance such as the use of ammonium iron methane

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