

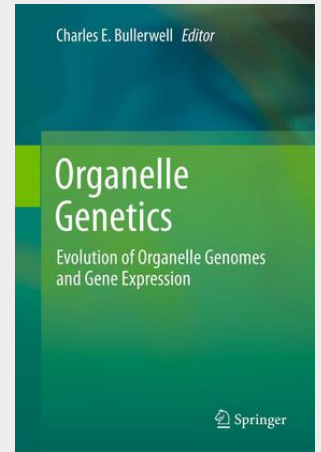
Bullerwell

Organelle Genetics

Evolution of Organelle Genomes and Gene Expression

Mitochondria and chloroplasts are eukaryotic organelles that evolved from bacterial ancestors and harbor their own genomes. The gene products of these genomes work in concert with those of the nuclear genome to ensure proper organelle metabolism and biogenesis. This book explores the forces that have shaped the evolution of organelle genomes and the expression of the genes encoded by them. Some striking examples of trends in organelle evolution explored here are the reduction in genome size and gene coding content observed in most lineages, the complete loss of organelle DNA in certain lineages, and the unusual modes of gene expression that have emerged, such as the extensive and essential mRNA editing that occurs in plant mitochondria and chloroplasts. This book places particular emphasis on the current techniques used to study the evolution of organelle genomes and gene expression.

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