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Nota di contenuto	Part I: Identification of Endosymbionts and Organelle Genome Reduction -- 1) Endosymbiotic Theory for the Origin of Chloroplasts and Mitochondria(possible preface) -- 2) Phylogenetic Identification of the Ancestral Mitochondria -- 3) Phylogenetic Origin of simple and complex plastids -- 4) Experimental evidence for organelle to nuclear gene transfer -- 5) Bleaching Euglena; experimental evidence for chloroplast genome loss -- Part II: Host Cell Mechanisms for Protein Localization and Transport across Membranes -- 6) ER Translocation; the Start of the Exocytic Pathway -- 7) Protein Import into Vacuoles -- 8) The ERAD System: Retrotranslocation of Proteins from the ER to the Cytoplasm -- 9) Phagocytosis; Entry of Free living prokaryotes and Eukaryotes into Food Vacuoles -- 10) Insertion of the Bacterial Respiratory Complex in the Bacterial Membrane -- 11) Insertion of Light Harvesting Complex into the Cyanobacterial Membrane -- Part

III: Endosymbiont Derived Organelles -- 12) Protein Import into Mitochondria; Soluble and Integral Membrane Proteins -- 13) Mitosomes and Hydrogenosomes: Protein Import into Mitochondria-related organelles Lacking a Genome -- 14) Import of Soluble and Envelope Proteins into Simple Chloroplast -- 15) Protein Import into Thylakoids; Adapting the Prokaryotic System -- 16) Protein Import into Complex Plastids with Three Envelope Membranes; The Plastid as an Endomembrane Compartment -- 17) Protein Import into Complex Plastids with Four Envelope Membranes; A Plastid within the ER and adaptation of the ERAD System -- 18) Protein import into complex plastids of cryptomonads and chlorarachniophytes; complex plastids where the remnant of the endosymbiont nucleus is located between the outer two and inner two plastid membranes -- 19) Protein Import into Apicoplasts; A Reduced Genome Plastid in the Malarial Parasite.

Sommario/riassunto

This volume provides in depth reviews of the protein targeting translocation processes, gene transfer processes and genome reduction processes in the host and in the endosymbiont which were likely utilized during the evolution of an endosymbiont into mitochondria, mitochondria related organelles, simple and complex chloroplasts. These reviews cover both the current understanding of the host processes as well as the evolutionary outcomes used by these organelles for protein targeting and translocation. Reviews of the current knowledge of these topics are plentiful but scattered throughout the bacterial, parasite, plant and animal literature; here, reviews of current knowledge with evolutionary outcomes and future perspectives, written by leading researchers in their respective areas, are united into one comprehensive volume, essential for students and scientists interested in or working on subcellular protein localization, protein targeting signals, translocation of proteins across and insertion into membranes, nucleic acid transfer between genomes, genome reduction and evolution of mitochondria and chloroplast. .