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	 Complex; 2.5 The F(1)/F(O) Interface: Contact Sites for Energy Transmission 2.6 Structure, Configuration, and Interaction of F(O) Subunits2.7 Catalysis: Coupling Ion Translocation to ATP Synthesis; References; 3 Sodium/Substrate Transport; 3.1 Introduction; 3.2 Occurrence and Role of Na(+) /Substrate Transport Systems; 3.2.1 General Considerations; 3.2.2 Elevated Temperatures; 3.2.3 Na(+) -rich Environments; 3.2.4 High pH; 3.2.5 Citrate Fermentation; 3.2.6 Na(+) /Substrate Transport in Escherichia coli; 3.2.7 Osmotic Stress; 3.3 Functional Properties of Na(+) /Substrate Transport Systems; 3.3.1 General Considerations; 3.3.2 MelB; 3.3.3 PutP; 3.3.4 CitS 3.4 Transporter Structure3.4.1 General Features; 3.4.2 MelB; 3.4.3 PutP and Other Members of the SSF; 3.4.4 CitS; 3.5 Structure -Function Relationships; 3.5.1 MelB; 3.5.1.1 Site of Ion Binding; 3.5.1.2 Sugar Binding and Functional Dynamics of MelB; 3.5.2 PutP; 3.5.2.1 Site of Na (+) Binding; 3.5.2.2 Regions Important for Proline Binding; 3.5.2.3 Functional Dynamics of PutP; 3.5.3 CitS; 3.6 Concluding Remarks and Perspective; References; 4 Prokaryotic Binding Protein-dependent ABC Transporters; 4.1 A Brief History of ABC Systems; 4.2 What is an ABC System? 4.3 The Composition of the Prokaryotic ABC Transporters4.4 Associated Proteins and Signal Transduction Pathways; 4.5 The Components; 4.5.1 The Binding Proteins; 4.5.1.1 Substrate Recognition Sites are High-affinity Soluble Binding Proteins; 4.5.1.2 The Binding Test; 4.5.1.3 Special Examples; 4.5.1.4 Binding Proteins Undergo Conformational Changes upon Binding Substrate; 4.5.1.5 The Crystal Structure; 4.5.2 The Integral Transmembrane Domains (TMDs); 4.5.2.1 Organization; 4.5.2.2 Composition and Structure; 4.5.2.3 The Interaction of the TMDs with the Binding Protein; 4.5.2.4 The Sequence 4.5.3 The ABC Subunit 	
Sommario/riassunto	Transport of molecules across the cell membrane is a fundamental process of all living organisms. It is essential for understanding growth, development, nutrition as well as uptake and excretion of exogenous or synthesized molecules. Microbes respresent general and basic functional systems where many transport processes have been studied on a molecular basis. Knowledge of the microbial transport processes will provide new perspectives to treatments by inhibitors, drugs, antibiotics, vitamins, growth promotion compounds, activators and toxic compunds of various kinds.	