

Contents

Preface	v
-------------------	---

STRUCTURE AND FUNCTION OF OXIDATIVE PHOSPHORYLATION SYSTEMS

Uncoupling Protein, Prototype of a Simple Proton Translocator: Structure and Function	<i>M. Klingenberg</i>	3
The NADH-UQ Oxidoreductase System of <i>Escherichia coli</i> . . . <i>T. Ohnishi, S.W. Meinhardt, K. Matsushita, and H.R. Kaback</i>		19
Structure and Function of NADH: Ubiquinone Reductase and Ubiquinol: Cytochrome <i>c</i> Reductase from <i>Neurospora</i> Mitochondria	<i>H. Weiss, H. Haiker, U. Harnisch, W. Ise, J. Römisch, U. Schulte, and K. Leonard</i>	31
The Lateral Diffusion of Ubiquinone in the Inner Mitochondrial		

Membrane	<i>G. Lenaz, R. Fato, M. Battino, E. Mandrioli, and G.P. Castelli</i>	49
Structure-function Relationships in the Three-subunit Cytochrome bc_1 Complex of <i>Paracoccus denitrificans</i>	<i>X. Yang, P.O. Ljungdahl, W.E. Payne, and B.L. Trumpower</i>	63
The Nature of Ubiquinone Binding Sites in the Mitochondrial Electron Transfer Complexes	<i>C-A. Yu and L. Yu</i>	81
Structure and Assembly of Mitochondrial Electron-transfer Complexes	<i>T. Ozawa, M. Nishikimi, H. Suzuki, M. Tanaka, and Y. Shimomura</i>	101

MOLECULAR APPROACHES IN ENERGY TRANSDUCING SYSTEMS

Ion Pumps and Light Energy Transducers	<i>Yu.A. Ovchinnikov</i>	123
Molecular Biological Studies of H^+ -ATPase: From Genes to Essential Residues	<i>M. Futai, T. Noumi, J. Miki, and M. Maeda</i>	153
Genes for ATP Synthases from Bacteria, Chloroplasts, and Mitochondria	<i>J.E. Walker, A.L. Cozens, M.R. Dyer, I.M. Fearnley, S.J. Powell, and M.J. Runswick</i>	167
ATP Synthase: Energetics, Genetics, and Cell Biology	<i>Y. Kagawa, S. Ohta, H. Hirata, T. Hamamoto, C. Ide, and T. Takaoka</i>	179
Biochemical Genetics of Subunit 9 (DCCD-binding Proteolipid) of the Yeast Mitochondrial Proton-translocating ATP Synthase Complex	<i>P. Nagley and A.W. Linnane</i>	191
Intracellular and Intramitochondrial Sorting of Mitochondrial Precursor Proteins	<i>M. Schwaiger and W. Neupert</i>	205

REAPPRAISAL OF HYPOTHESES FOR THE MECHANISM OF ENERGY TRANSDUCTION

Cellular Thermogenesis: A New Approach	<i>T. Ramasarma, B.S. Sekhar, and C.K.R. Kurup</i>	225
--	--	-----

A Kinetic Model of Chemiosmotic Energy Coupling: Analysis of Double Inhibitor Titration Experiments	
..... <i>D. Pietrobon and S.R. Caplan</i>	235
Unveiling the Mechanism of ATP-dependent Energization of Yeast Vacuolar Membranes: Discovery of a Third Type of H ⁺ -translocating ATP	
..... <i>Y. Anraku</i>	249
How Does Cytochrome Oxidase Pump Protons?	
... <i>H. Baum, M.F. Grahn, J. Elsdon, and J.M. Wriggles-Worth</i>	263
Conformational Stability of the Proteolipid Oligomer of the H ⁺ -conducting F ₀ of the ATP Synthase	
..... <i>W. Sebald, H. Weber, and J. Hoppe</i>	279
Recent Advances in Oxidative Phosphorylation	
..... <i>Y. Hatefi, A. Matsuno-Yagi, and T. Yagi</i>	289
The Q-gated Proton Pump Model of Ubiquinol-cytochrome <i>c</i> Reductase: Identification of Critical Amino Acid Residues in Polypeptide Subunits	
..... <i>S. Papa, M. Lorusso, D. Gatti, and T. Cocco</i>	305
Subject Index	321