

CONTENTS

Preface

MEMBRANE STRUCTURE AND BIOGENESIS

The molecular organisation of cell membranes	3
D. Chapman	
Use of apolar labels to identify intrinsic membrane proteins and ionophoric channels	11
C. Gitler	
Probing of protein microenvironment by fluorescein derivatives: A study with glycogen phosphorylase b	27
N.G. Oikonomakos, T.G. Sotiroudis and A.E. Evangelopoulos	
Photoaffinity binding of cytochrome c to cytochrome c oxidase	39
R. Bisson, H. Gutweniger, C. Montecucco, R. Colonna, A. Zanotti and A. Azzi	
Rotational diffusion of various membrane bound proteins as determined by saturation transfer EPR spectroscopy	47
P.F. Devaux, A. Baroin, A. Bienvenue, E. Favre, A. Rousselet and D.D. Thomas	
Surface potential changes on energization of mitoplasts and chloroplasts	55
A.T. Quintanilha and L. Packer	
Biogenesis of chloroplast membranes in algae	61
I. Ohad	
Biogenesis of the photosynthetic membranes in higher plants	71
G. Akoyunoglou	
Development of the cation-induced stacking capacity in higher plant thylakoids during their biogenesis	85
J.H. Argyroudi-Akoyunoglou	
Discussion	97
D. Chapman	
BACTERIORHODOPSIN	
Light-driven proton and sodium ion transport in bacteriorhodopsin-containing particles	101
S.R. Caplan, M. Eisenbach, S. Cooper, H. Garty, G. Klemperer and E.P. Bakker	
Light-dependent CO ₂ fixation in anaerobic <i>Halobacterium halobium</i>	115
A. Danon and S.R. Caplan	
Light-induced pH changes in purple-membrane fragments of <i>Halobacterium halobium</i>	119
M. Eisenbach, H. Garty, G. Klemperer, C. Weissmann, G. Tanny and S.R. Caplan	

Light-induced transport in <i>Halobacterium halobium</i> cell envelope vesicles	129
J.K. Lanyi	
Transient photovoltages generated by charge displacements in intermediates of the bacteriorhodopsin photoreaction cycle	137
S.-B. Hwang, J.I. Korenbrot and W. Stoeckenius	
Use of lipid impregnated millipore filters for the direct measurement of photopotentials across envelope vesicles of <i>Halobacterium halobium</i> and for assay of ionophore activity of the oligomycin binding subunit 9 of the yeast mitochondrial ATPase	149
L. Packer, P.W. Shieh, J.K. Lanyi and R.S. Criddle	
QUINONES AND NON-HEME IRON PROTEINS	
<i>Introduction. Ubiquinones: Reconstitution</i>	
A. Azzi	163
Functional compartmentation of the mitochondrial quinone during simultaneous oxidation of two substrates	165
M. Gutman	
The permeability of quinones through membranes	177
G. Hauska	
Interactions and mobility of ubiquinone in the inner mitochondrial membrane	189
G. Lenaz, S. Mascarello, L. Landi, L. Cabrini, P. Pasquali, G. Parenti-Castelli, A.M. Sechi and E. Bertoli	
The role of ubiquinone-10 in the <i>b-a₂</i> segment of the cyclic photosynthetic chain of bacterial chromatophores	199
A. Baccharini Melandri and B.A. Melandri	
<i>Introduction. Recently discovered components of the mitochondrial electron transfer system</i>	205
H. Beinert	
EPR studies of center S-3 and spin-spin interaction of ubisemiquinone pair	209
T. Ohnishi, J.C. Salerno, H. Blum, J.S. Leigh and W.J. Ingledew	
EPR determination of the quantitative relationships between the electron transport components of the photosystem I reaction centre	217
M.C.W. Evans, P. Heathcote and D.L. Williams-Smith	
PHOTOSYNTHESIS	
Electrochromism in chloroplasts and in chromatophores of the purple bacterium <i>Rhodospseudomonas sphaeroides</i>	227
B.G. de Groot and J. Amez	
Function and organization of individual polypeptides in chloroplast photosystem I reaction center	233
N. Nelson and B.-E. Nomsani	

Cation-induced microstructural changes in chloroplast membranes: Effects on photosystem II activity	245
S. Bose, J.J. Burke and C.J. Arntzen	
A comparative study of glutaraldehyde and dimethylsuberimidate as protein crosslinking agents for chloroplast membranes	257
G.C. Papageorgiou and J. Isaakidou	
Thylakoid membrane structure: Two-dimensional separation of proteins by isoelectric focusing and electrophoresis in sodium dodecylsulphate	269
P.-A. Siegenthaler and I. Novak-Hofer	
Inactivation of S ₂ by alkaline pH inside the thylakoid	287
J.-M. Briantais, C. Vernotte, J. Lavergne, C.J. Arntzen and M. Picaud	
Fluorescence spectroscopy of chlorophyll-protein complexes	297
J.S. Brown	
The role of manganese in the oxygen evolving mechanism of photo- synthesis	305
Govindjee, T. Wydrzynski and S.B. Marks	
Electron transfer between different photosystems I in chloroplasts	317
W. Haehnel	
Structural and quantitative analysis of membrane-bound components of the photosystem I complex of spinach chloroplasts by immunological methods	329
H. Böhme	
The use of trypsin as a structurally selective modifier of the thylakoid membrane	339
G. Renger	
Optical studies of photosystem I particles: Evidence for the presence of multiple electron acceptors	351
K. Sauer, S. Acker, P. Mathis and J.A. Van Best	
Effects of trypsin on chloroplast membranes	361
P. Gerola, E. De Benedetti, S. Rizzi, G. Forti and F.M. Garlaschi	
ELECTRON TRANSPORT, COUPLING AND PHOSPHORYLATION	
<i>Introduction. Pathways of electron transport and energy coupling</i>	
373	
L. Ernster	
Proton transfer reactions associated to oxido-reductions in the cytochrome system of mitochondria	377
S. Papa, M. Lorusso, F. Guerrieri, D. Boffoli, G. Izzo and F. Capuano	
Transmembrane electron transport and energy conservation in chloroplasts	389
A. Trebst	
The disequilibrium between steady state Ca ⁺⁺ accumulation ratio and membrane potential in rat liver mitochondria	395
G.F. Azzone, T. Pozzan, M. Bragadin and S. Massari	
Acid-base induced reverse electron flow in chloroplasts	405
Y. Shahak, Y. Siderer and M. Avron	

How do cytoplasmically synthesized proteins become incorporated into mitochondria? Some studies of the problem using the isozymes of aspartate aminotransferase	415
E. Marra, S. Doonan, C. Saccone and E. Quagliariello	
A single carrier to transport oxaloacetate into rat liver mitochondria	425
S. Passarella, F. Palmieri and E. Quagliariello	
Evidence for localized energy transfer in reconstituted submitochondrial particles	435
K. Nordenbrand, T. Hundal, C. Carlsson, G. Sandri and L. Ernster	
Conformational change, ATP generation and turnover rate of the chloroplast ATPase analyzed by energization with an external electric field	447
H.T. Witt, E. Schlodder and P. Gräber	
Thylakoid membrane surface charges in relation to prompt and delayed chlorophyll fluorescence	459
J. Barber	
³¹ P High resolution NMR studies of bioenergetics in <i>E. coli</i>	471
R.G. Shulman, G. Navon, S. Ogawa, T. Yamane, T.R. Brown, K. Ugurbil, P. Glynn and H. Rottenberg	
An investigation into the different populations of carotenoids in chromatophores from <i>Rhodospseudomonas sphaeroides</i> and <i>capitata</i>	477
M. Symons, C. Swysen and C. Sybesma	
Change of lecithin aggregation due to valinomycin-lipid interaction, and its relevance to energy conversion	485
D. Walz	
Coupling factor ATPase of <i>Rhodospirillum rubrum</i> chromatophores: Isolation and purification of an oligomycin and DCCD sensitive ATPase	495
Z. Gromet-Elhanan and R. Oren	
Structural organization of oligomycin-sensitive ATPase-ATP synthase in pig heart mitochondrial inner membrane	501
D.C. Gautheron, C. Godinot, H. MaTrouch, B. Blanchy, F. Penin and Z. Wojtkowiak	
A quantitative study of the reconstitution of mitochondrial oligomycin-sensitive ATPase	515
E. Glaser, B. Norling and L. Ernster	
Glycoprotein nature of energy transducing ATPases	529
J.M. Andreu, V. Larraga and E. Munoz	
Author index	537