# TABLE OF CONTENTS

## Volume I

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lipid Properties as a Basis for Membrane Modeling and Rational Liposome Design</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Gregor Cevc</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Efficient Entrapment of Solutes in Microfluidized Small Dehydration-Rehydration Liposomes</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>Gregory Gregoriadis and Alexander T. Florence</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Liposome Preparation Using High-Pressure Homogenizers</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Martin M. Brandl, Dieter Bachmann, Markus Drechsler, and Kurt H. Bauer</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Preparation of Large Unilamellar Liposomes with High Entrapment Yield by Rotary Dialysis or Agarose Plug Diffusion</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>Susan Gould-Fogerite and Raphael J. Mannino</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>A Mild Method for the Preparation of Very Large Unilamellar Liposomes</td>
<td>81</td>
</tr>
<tr>
<td></td>
<td>Jean R. Philippot and Jean P. Lliautard</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Preparation of MLV by the REV Method: Vesicle Structure and Optimum Solute Entrapment</td>
<td>99</td>
</tr>
<tr>
<td></td>
<td>Charles Pidgeon</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Production and Size Control of Large Unilamellar Liposomes by Emulsification</td>
<td>111</td>
</tr>
<tr>
<td></td>
<td>Fumiyoshi Ishii</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Reduction of Liposome Size and Preparation of Unilamellar Vesicles by Extrusion Techniques</td>
<td>123</td>
</tr>
<tr>
<td></td>
<td>Michael J. Hope, Rajiv Nayar, Lawrence D. Mayer, and Pieter R. Cullis</td>
<td></td>
</tr>
</tbody>
</table>
Chapter 19
Microelectrophoresis of Liposomes ........................................... 331
Sai-Lung Law

Chapter 20
Immobilization of Liposomes in Gel Beads ................................. 343
Per Lundahl, Qing Yang, Eva Greijer, and Maria Sandberg

Chapter 21
Freeze-Fracture Electron Microscopy of Liposomes ..................... 363
Brigitte Sternberg

Chapter 22
Studying Liposomes by X-Ray Scattering .................................. 385
Michael F. Moody

Chapter 23
Effects of Gamma Irradiation on the Liposomal Structure ............. 399
Gianni Albertini and Franco Rustichelli

Chapter 24
Miniosmotic Pumps for Liposomal Drug Delivery ....................... 429
Sidney Lerman and Judith Megaw

Chapter 25
Hydrodynamics of Liposomes and Their Multivalent Interactions with Surface Receptors ................................................. 439
Anne L. Plant, Marsha Gray, Laurie Locascio-Brown,
and William T. Yap

Chapter 26
Analysis and Hydrolysis Kinetics of Phospholipids in Aqueous Liposome Dispersions .............................................................. 455
Mustafa Grit, Nicolaas J. Zuidam, and Daan J. A. Crommelin

Chapter 27
The Preparation of Large Volumes of Sterile Liposomes for Clinical Applications ................................................................. 487
Reto A. Schwendener

Chapter 28
A Large-Scale Method for the Preparation of Sterile and Non-Pyrogenic Liposomal Formulations of Defined Size Distributions for Clinical Use ................................................. 501
Shimon Amselem, Alberto Gabizon, and Yechezkel Barenholz
Chapter 1
Optimal Liposomal Drug Action: From Serendipity to Targeting ............... 1
Demetrios Papahadjopoulos

Chapter 2
Interactions of Lipid Membranes with Blood Cells and Proteins:
Implications for Drug Delivery and for Biocompatibility ...................... 15
Rudy L. Juliano and Michael Meyer

Chapter 3
Pharmacodynamics of Liposomal Drug Carriers:
Methodological Considerations ................................................. 27
Marcel B. Bally, Lawrence D. Mayer, Michael J. Hope,
and Rajiv Nayar

Chapter 4
Techniques to Study the Opsonic Effect of Serum on
Uptake of Liposomes by Phagocytic Cells from Various
Organs of the RES .............................................................. 43
S. Moein Moghimi and Harish M. Patel

Chapter 5
Sterically Stabilized ("Stealth") Liposomes: Pharmacokinetic
and Therapeutic Advantages .................................................. 59
Theresa M. Allen and Demetrios Papahadjopoulos

Chapter 6
Application of Lipidic Liposome Labels to Study Hepatic Lipid
Metabolism in Rats .............................................................. 73
Gerrit L. Scherphof, Roel J. Vonk, Henkjan J. Verkade,
Johannes T. P. Derksen, and Folkert Kuipers

Chapter 7
Techniques for the Study of Liposome-Skin Interactions ...................... 91
Michael Mezei
Chapter 8
Technology for Monitoring Topically Applied Liposomes..................107
Norman Weiner, Kamel Egbaria, C. Ramachandran, and Linda Lieb

Chapter 9
Comments on the Application of Liposome Technology to
Specific Cell Targeting.....................................................139
Lee Leserman, Hiroichiro Suzuki, and Patrick Machy

Chapter 10
Immunoliposome Targeting in a Mouse Model: Optimization
and Therapeutic Application.............................................153
Atsuhide Mori and Leaf Huang

Chapter 11
Preparation of Streptavidin-Liposomes for Use in Ligand-
Specific Targeting Applications .......................................163
Helen C. Loughrey, Lewis S. Choi, Kim F. Wong, Pieter R. Cullis,
and Marcel B. Bally

Chapter 12
Site Specific Liposomes Coated with Polysaccharides.................179
Toshinori Sato and Junzo Sunamoto

Chapter 13
Targeting of Liposomes with Mannose-Terminated Ligands...........199
Gillian Barratt and Francis Schuber

Chapter 14
Targeting of Liposomes with Tris-Galactoside-Terminated
Cholesterol .................................................................219
Theo J. C. van Berkel, J. Kar Kruijt, Halbe H. Spanjer,
Herman Jan M. Kempen, and Gerrit L. Scherphof

Chapter 15
Coupling of Aminogroup-Bearing Ligands to Liposomes............231
Volkmar Weissig and Gregory Gregoriadis

Chapter 16
Liposome-Mediated Introduction of Macromolecules into
Living Animal Cells with the Aid of HVJ (Sendai Virus).............249
Mahito Nakamishi and Yoshio Okada
Chapter 17
Targeted Fusogenic Proteoliposomes: Functional Reconstitution of Membrane Proteins Through Protein-Cochleate Intermediates ....... 261
Susan Gould-Fogerite and Raphael J. Mannino

Chapter 18
Target-Sensitive Liposomes for Potential Therapeutic Applications .............................................................. 277
Purnima Pinnaduwage and Leaf Huang

Chapter 19
Two Types of pH-Sensitive Immunoliposomes ........................................ 289
Ana Maria Tari, Fan Zhou, and Leaf Huang

Chapter 20
Utilization of Contact Sensitive Liposome Formulations in Membrane Lytic Homogeneous Immunoassays .................... 301
Larry R. Hillis, James D. Handly, and Bruce P. Babbitt

Chapter 21
Preparation and Use of Liposomes in Immunological Studies .......... 317
Carl R. Alving, Shigeki Shichijo, Inger Mattsby-Baltzer, Roberta L. Richards, and Nabila M. Wassef

Chapter 22
Tolerability of Liposomes In Vivo ........................................ 345
Gert Storm, Christien Oussoren, Pierre A. M. Peeters, and Yechezkel Barenholz

Index ........................................................................ 385