
Contents

| | |
|--|-----------|
| <i>Preface</i> | <i>v</i> |
| <i>Contributors</i> | <i>ix</i> |
| 1 Introduction to Membrane Lipids <i>Richard M. Epand</i> | 1 |
| 2 Introduction: Membrane Properties (Good) for Life <i>Marek Cebecauer</i> | 7 |
| 3 Introduction to Fluorescence Probing of Biological Membranes <i>Alexander P. Demchenko, Guy Duportail, Sule Oncul, Andrey S. Klymchenko, and Yves Mély</i> | 19 |
| 4 The Assembly and Use of Tethered Bilayer Lipid Membranes (tBLMs) <i>Charles Cranfield, Sonia Carne, Boris Martinac, and Bruce Cornell</i> | 45 |
| 5 Preparation of Detergent-Resistant Membranes (DRMs) from Cultured Mammalian Cells <i>Deborah A. Brown</i> | 55 |
| 6 Isolation of Giant Plasma Membrane Vesicles for Evaluation of Plasma Membrane Structure and Protein Partitioning <i>K.R. Levental and I. Levental</i> | 65 |
| 7 Asymmetric Giant Lipid Vesicle Fabrication <i>Peichi C. Hu and Noah Malmstadt</i> | 79 |
| 8 Cholesterol Depletion Using Methyl- β -cyclodextrin <i>Saleemulla Mahammad and Ingela Parmryd</i> | 91 |
| 9 A Comparative LC-MS Based Profiling Approach to Analyze Lipid Composition in Tissue Culture Systems <i>G. Ekin Atilla-Gokcumen and Ulrike S. Eggert</i> | 103 |
| 10 Imaging Membrane Order Using Environmentally Sensitive Fluorophores . . . <i>G.W. Ashdown and Dylan M. Owen</i> | 115 |
| 11 3D Super-Resolution Imaging by Localization Microscopy <i>Astrid Magenau and Katharina Gaus</i> | 123 |
| 12 Electron Microscopy Methods for Studying Plasma Membranes <i>Alison J. Beckett and Ian A. Prior</i> | 137 |
| 13 Measuring Cytoskeleton and Cellular Membrane Mechanical Properties by Atomic Force Microscopy <i>Charles Roduit, Giovanni Longo, Giovanni Dietler, and Sandor Kasas</i> | 153 |

| | | |
|----|---|-----|
| 14 | Fluorescence Linear Dichroism Imaging for Quantifying Membrane Order | 161 |
| | <i>Richard K.P. Benninger</i> | |
| 15 | Scanning Fluorescence Correlation Spectroscopy on Biomembranes | 181 |
| | <i>Eduard Hermann, Jonas Ries, and Ana J. García-Sáez</i> | |
| 16 | X-Ray Diffraction of Lipid Model Membranes. | 199 |
| | <i>Arwen I.I. Tyler, Robert V. Law, and John M. Seddon</i> | |
| 17 | Solid State NMR of Lipid Model Membranes | 227 |
| | <i>Arwen I.I. Tyler, James A. Clarke, John M. Seddon, and Robert V. Law</i> | |
| 18 | Fluorescence Recovery After Photobleaching (FRAP): Acquisition, Analysis, and Applications | 255 |
| | <i>Michael Carnell, Alex Macmillan, and Renee Whan</i> | |
| 19 | The Laurdan Spectral Phasor Method to Explore Membrane Micro-heterogeneity and Lipid Domains in Live Cells | 273 |
| | <i>Ottavia Golfetto, Elizabeth Hinde, and Enrico Gratton</i> | |
| 20 | Cholesterol Behavior in Asymmetric Lipid Bilayers: Insights from Molecular Dynamics Simulations | 291 |
| | <i>Semen O. Yesyevskyy and Alexander P. Demchenko</i> | |
| 21 | Computer Simulations of Phase Separation in Lipid Bilayers and Monolayers. | 307 |
| | <i>Svetlana Baoukina and D. Peter Tieleman</i> | |
| | <i>Index</i> | 323 |

Methods in Membrane Lipids

Owen, D.M. (Ed.)

2015, XI, 327 p. 43 illus., 15 illus. in color., Hardcover

ISBN: 978-1-4939-1751-8

A product of Humana Press