

Contents

Contributors	vii
Preface	ix
1 An Introduction to Freeze Fracture and Deep Etching David M. Shotton and Nicholas J. Severs	1
2 A Practical Introduction to Rapid Freezing Techniques Nicholas J. Severs, Terence M. Newman, and David M. Shotton	31
3 A Guide to Equipment for Production of Freeze-Fracture Replicas Terence M. Newman	51
4 Freeze-Fracture Artifacts: How to Recognize and Avoid Them Rukmal M. Abeysekera and Anthony W. Robards	69
5 High Pressure Freezing John Z. Kiss and L. Andrew Staehelin	89
6 Time-Resolved Analysis of Rapid Events Gerd Knoll	105
7 Grid-Mapped Freeze Fracture: Correlative Confocal Laser Scanning Microscopy and Freeze-Fracture Electron Microscopy of Preselected Cells in Tissue Slices John E. Rash, Robert K. Dillman, Michio Morita, L. Ray Whalen, Peter B. Guthrie, Denise Fay-Guthrie and David W. Wheeler	127
8 Manipulation of Cell Monolayers to Reveal Plasma Membrane Surfaces for Freeze-Drying and Surface Replication Milan V. Nermut	151
9 Freeze-Fracture Cytochemistry: An Explanatory Survey of Methods Nicholas J. Severs	173

10 Backscattered Electron Imaging of Colloidal Gold-Labeled Fracture-Label Preparations	209
Frederick W. K. Kan	
11 Lipid Localization by Membrane Perturbation: A Cautionary Tale	225
Nicholas J. Severs	
12 Membrane Lipids and Model Membrane Systems	235
Michael J. Hope and Wendi V. Rodriguez	
13 Freeze Fracture and Freeze Etching in Neurobiology: An Ongoing Story	255
David W. Pumplin	
14 Events at the Cell Surface: Exocytosis and Remodeling of the Extracellular Matrix as Seen in Quick-Frozen, Deep-Etched Cells	285
Nancy M. Mozingo and Douglas E. Chandler	
15 Visualization of Basement Membrane Molecules and Supramolecular Assemblies	311
Peter D. Yurchenco and George C. Ruben	
16 Early Events in Atherosclerosis Captured by the Quick-Freeze/Deep-Etch Technique	335
Joy S. Frank, Giuliano Mottino, and Patricia Nievelstein-Post	
17 Viral Infection Studied by Freeze-Fracture Cytochemistry	347
Maria Rosaria Torrisi and Antonio Pavan	
Index	361