

Contents in Brief

List of Topics	ix
Acknowledgments	xxix
Prologue	xxxiii
A Note to the Reader	xxxix

Introduction to the Cell

PART



1. Evolution of the Cell	3
2. Small Molecules, Energy, and Biosynthesis	43
3. Macromolecules: Structure, Shape, and Information	91
4. How Cells are Studied	143

The Molecular Organization of Cells

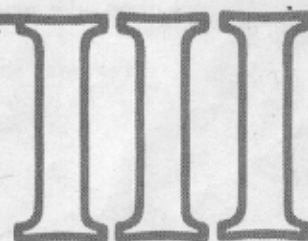
PART



5. Basic Genetic Mechanisms	199
6. The Plasma Membrane	255
7. Internal Membranes and the Synthesis of Macromolecules	319
8. The Cell Nucleus	385
9. Energy Conversion: Mitochondria and Chloroplasts	483
10. The Cytoskeleton	549
11. Cell Growth and Division	611
12. Cell-Cell Adhesion and the Extracellular Matrix	673
13. Chemical Signaling Between Cells	717

From Cells to Multicellular Organisms

PART



14. Germ Cells and Fertilization	769
15. Cellular Mechanisms of Development	813
16. Differentiated Cells and the Maintenance of Tissues	891
17. The Immune System	951
18. The Nervous System	1013
19. Special Features of Plant Cells	1099

Index