

Contents in Brief

PART I *Introduction*

- 1 *An Overview of Cells and Cell Research* 3
- 2 *The Chemistry of Cells* 39
- 3 *Fundamentals of Molecular Biology* 87

PART II *The Flow of Genetic Information*

- 4 *The Organization of Cellular Genomes* 135
- 5 *Replication, Maintenance, and Rearrangements of Genomic DNA* 175
- 6 *RNA Synthesis and Processing* 225
- 7 *Protein Synthesis, Processing, and Regulation* 273

PART III *Cell Structure and Function*

- 8 *The Nucleus* 315
- 9 *Protein Sorting and Transport: The Endoplasmic Reticulum, Golgi Apparatus, and Lysosomes* 347
- 10 *Bioenergetics and Metabolism: Mitochondria, Chloroplasts, and Peroxisomes* 389
- 11 *The Cytoskeleton and Cell Movement* 423
- 12 *The Cell Surface* 467

PART IV *Cell Regulation*

- 13 *Cell Signaling* 521
- 14 *The Cell Cycle* 561
- 15 *Cancer* 599