

Contents

<i>Special Features</i>	<i>viii</i>
<i>Detailed Contents</i>	<i>ix</i>
<i>Acknowledgments</i>	<i>xxvi</i>
<i>A Note to the Reader</i>	<i>xxxi</i>
PART I	INTRODUCTION TO THE CELL
1.	Cells and Genomes 1
2.	Cell Chemistry and Biosynthesis 45
3.	Proteins 125
PART II	BASIC GENETIC MECHANISMS
4.	DNA, Chromosomes, and Genomes 195
5.	DNA Replication, Repair, and Recombination 263
6.	How Cells Read the Genome: From DNA to Protein 329
7.	Control of Gene Expression 411
PART III	METHODS
8.	Manipulating Proteins, DNA, and RNA 501
9.	Visualizing Cells 579
PART IV	INTERNAL ORGANIZATION OF THE CELL
10.	Membrane Structure 617
11.	Membrane Transport of Small Molecules and the Electrical Properties of Membranes 651
12.	Intracellular Compartments and Protein Sorting 695
13.	Intracellular Vesicular Traffic 749
14.	Energy Conversion: Mitochondria and Chloroplasts 813
15.	Mechanisms of Cell Communication 879
16.	The Cytoskeleton 965
17.	The Cell Cycle 1053
18.	Apoptosis 1115
PART V	CELLS IN THEIR SOCIAL CONTEXT
19.	Cell Junctions, Cell Adhesion, and the Extracellular Matrix 1131
20.	Cancer 1205
21.	Sexual Reproduction: Meiosis, Germ Cells, and Fertilization 1269
22.	Development of Multicellular Organisms 1305
23.	Specialized Tissues, Stem Cells, and Tissue Renewal 1417
24.	Pathogens, Infection, and Innate Immunity 1485
25.	The Adaptive Immune System 1539
<i>Glossary</i>	<i>G-1</i>
<i>Index</i>	<i>I-1</i>
<i>Tables</i>	<i>The Genetic Code, Amino Acids T-1</i>