

Contents

UNIT I: Cell and Tissue Structure and Organization

Chapter 1: Stem Cells and Their Differentiation	2
Chapter 2: Extracellular Matrix and Cell Adhesion	9
Chapter 3: Biological Membranes	26
Chapter 4: Cytoskeleton	35
Chapter 5: Organelles	47

UNIT II: Organization of the Eukaryotic Genome and Gene Expression

Chapter 6: The Eukaryotic Genome	58
Chapter 7: DNA Replication	69
Chapter 8: Transcription	83
Chapter 9: Translation	92
Chapter 10: Regulation of Gene Expression	107
Chapter 11: Protein Trafficking	117
Chapter 12: Protein Degradation	126

UNIT III: Membrane Transport

Chapter 13: Basic Concepts of Transport	132
Chapter 14: Active Transport	140
Chapter 15: Glucose Transport	146
Chapter 16: Drug Transport	154

UNIT IV: Cell Signaling

Chapter 17: G Protein Signaling	160
Chapter 18: Catalytic Receptor Signaling	169
Chapter 19: Steroid Receptor Signaling	178

UNIT V: Regulation of Cell Growth and Cell Death

Chapter 20: The Cell Cycle	188
Chapter 21: Regulation of the Cell Cycle	196
Chapter 22: Abnormal Cell Growth	205
Chapter 23: Cell Death	215
Chapter 24: Aging and Senescence	226
Index	233