# Lippincott® Illustrated Reviews: Cell and Molecular Biology

**Third Edition** 

# Nalini Chandar, PhD

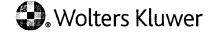
Professor

Department of Biochemistry and Molecular Genetics
Midwestern University
Downers Grove, Illinois

### Susan Viselli, PhD

Professor

Department of Biochemistry and Molecular Genetics
Midwestern University
Downers Grove, Illinois



# **Contents**

#### Acknowledgments...v

# UNIT I: Cell and Tissue Structure and Organization

Chapter 1: Stem Cells and Their Differentiation...2
Chapter 2: Extracellular Matrix and Cell Adhesion...11

Chapter 3: Biological Membranes...32

Chapter 4: Cytoskeleton...43 Chapter 5: Organelles...58

# UNIT II: Organization of the Eukaryotic Genome and Gene Expression

Chapter 6: The Eukaryotic Genome...70

Chapter 7: DNA Replication...81
Chapter 8: Transcription...95
Chapter 9: Translation...106

Chapter 10: Regulation of Gene Expression...121

Chapter 11: Protein Trafficking...132 Chapter 12: Protein Degradation...143

#### **UNIT III:** Membrane Transport

Chapter 13: Basic Concepts of Transport...150

Chapter 14: Active Transport...159
Chapter 15: Glucose Transport...166
Chapter 16: Drug Transport...174

#### UNIT IV: Cell Signaling

Chapter 17: G-Protein Signaling...180

Chapter 18: Catalytic Receptor Signaling...189
Chapter 19: Steroid Receptor Signaling...198

## UNIT V: Regulation of Cell Growth and Cell Death

Chapter 20: The Cell Cycle...208

Chapter 21: Regulation of the Cell Cycle...216

Chapter 22: Abnormal Cell Growth...225.

Chapter 23: Cell Death...236

Chapter 24: Aging and Senescence...249

Key Terms...257

Index...265