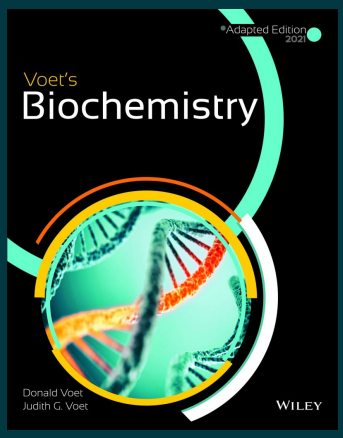
WILEY



Voet's Biochemistry, Adapted ed 2021

By Donald Voet, Judith G. Voet

Paperback 9789354243820 ₹- Price

Pages: 1560

Description

The “Gold Standard” in Biochemistry text books. Biochemistry 4e, is a modern classic that has been thoroughly revised. Don and Judy Voet explain biochemical concepts while offering a unified presentation of life and its variation through evolution. It incorporates both classical and current research to illustrate the historical source of much of our biochemical knowledge.

About the Author

Donald Voet, Judith G. Voet

Donald Voet took up a faculty position in the department of chemistry at the University of Pennsylvania, upon completing his postdoctoral work. He has been a visiting scholar at Oxford University, the University of California San Diego

Table of Contents

Guide to Media Resources

Part I Introduction and Background

Chapter 1 Life

1. Prokaryotes

2. Eukaryotes

3. Biochemistry: A Prologue

4. Genetics: A Review

5. The Origin of Life

6. The Biochemical Literature

Chapter 2 Aqueous Solutions

1. Properties of Water

2. Acids, Bases, and Buffers

Chapter 3 Thermodynamic Principles: A Review

1. First Law of Thermodynamics: Energy Is Conserved

2. Second Law of Thermodynamics: The Universe Tends Toward Maximum Disorder

3. Free Energy: The Indicator of Spontaneity

4. Chemical Equilibria

Appendix: Concentration Dependence of Free Energy
Part II Biomolecules
Chapter 4 Amino Acids
1. The Amino Acids of Proteins
2. Optical Activity
3. “Nonstandard” Amino Acids
Chapter 5 Nucleic Acids, Gene Expression, and Recombinant DNA Technology
1. Nucleotides and Nucleic Acids
2. DNA Is the Carrier of Genetic Information
3. Double Helical DNA
4. Gene Expression and Replication: An Overview
5. Molecular Cloning
Chapter 6 Techniques of Protein and Nucleic Acid Purifications
1. Protein Isolation
2. Solubilities of Proteins
3. Chromatographic Separations
4. Electrophoresis
5. Ultracentrifugation
6. Nucleic Acid Fractionation
Chapter 7 Covalent Structures of Proteins and Nucleic Acids
1. Primary Structure Determination of Proteins
2. Nucleic Acid Sequencing
3. Chemical Evolution
4. Bioinformatics: An Introduction
5. Chemical Synthesis of Polypeptides
6. Chemical Synthesis of Oligonucleotides
Chapter 8 Three-Dimensional Structures of Proteins
1. Secondary Structure
2. Fibrous Proteins
3. Globular Proteins
4. Protein Stability
5. Quaternary Structure
Appendix: Viewing Stereo Pictures
Chapter 9 Protein Folding, Dynamics, and Structural Evolution
1. Protein Folding: Theory and Experiment
2. Folding Accessory Proteins
3. Protein Structure Prediction and Design
4. Protein Dynamics

5. Conformational Diseases: Amyloids and Prions
6. Structural Evolution
Chapter 10 Hemoglobin: Protein Function in Microcosm
1. Hemoglobin and Myoglobin Function
2. Structure and Mechanism
3. Abnormal Hemoglobins
4. Allosteric Regulation
Appendix: Derivation of Symmetry Model Equations
Chapter 11 Sugars and Polysaccharides
1. Monosaccharides
2. Polysaccharides
3. Glycoproteins
Chapter 12 Lipids and Membranes
1. Lipid Classification
2. Properties of Lipid Aggregates
3. Biological Membranes
4. Membrane Assembly and Protein Targeting
5. Lipoproteins
Part III Mechanisms of Enzyme Action
Chapter 13 Introduction to Enzymes
1. Historical Perspective
2. Substrate Specificity
3. Coenzymes
4. Regulation of Enzymatic Activity
5. A Primer of Enzyme Nomenclature
Chapter 14 Rates of Enzymatic Reactions
1. Chemical Kinetics
2. Enzyme Kinetics
3. Inhibition
4. Effects of pH
5. Bisubstrate Reactions
Appendix: Derivations of Michaelis–Menten Equation Variants
Chapter 15 Enzymatic Catalysis
1. Catalytic Mechanisms
2. Lysozyme
3. Serine Proteases
4. Drug Design
Part IV Metabolism

Chapter 16 Introduction to Metabolism
1. Metabolic Pathways
2. Organic Reaction Mechanisms
3. Experimental Approaches to the Study of Metabolism
4. Thermodynamics of Phosphate Compounds
5. Oxidation–Reduction Reaction
6. Thermodynamics of Life
Chapter 17 Glycolysis
1. The Glycolytic Pathway
2. The Reactions of Glycolysis
3. Fermentation: The Anaerobic Fate of Pyruvate
4. Metabolic Regulation and Control
5. Metabolism of Hexoses Other than Glucose
Chapter 18 Glycogen Metabolism
1. Glycogen Breakdown
2. Glycogen Synthesis
3. Control of Glycogen Metabolism
4. Glycogen Storage Diseases
Chapter 19 Signal Transduction
1. Hormones
2. Heterotrimeric G Proteins
3. Tyrosine Kinase–Based Signaling
4. The Phosphoinositide Cascade
Chapter 20 Transport through Membranes
1. Thermodynamics of Transport
2. Kinetics and Mechanisms of Transport
3. ATP-Driven Active Transport
4. Ion Gradient–Driven Active Transport
5. Neurotransmission
Chapter 21 Citric Acid Cycle
1. Cycle Overview
2. Metabolic Sources of Acetyl-Coenzyme A
3. Enzymes of the Citric Acid Cycle
4. Regulation of the Citric Acid Cycle
5. The Amphibolic Nature of the Citric Acid Cycle
Chapter 22 Electron Transport and Oxidative Phosphorylation
1. The Mitochondrion
2. Electron Transport

3. Oxidative Phosphorylation
4. Control of ATP Production
Chapter 23 Other Pathways of Carbohydrate Metabolism
1. Gluconeogenesis
2. The Glyoxylate Cycle
3. Biosynthesis of Oligosaccharides and Glycoproteins
4. The Pentose Phosphate Pathway
Chapter 24 Photosynthesis
1. Chloroplasts
2. Light Reactions
3. Dark Reactions
Chapter 25 Lipid Metabolism
1. Lipid Digestion, Absorption, and Transport
2. Fatty Acid Oxidation
3. Ketone Bodies
4. Fatty Acid Biosynthesis
5. Regulation of Fatty Acid Metabolism
6. Cholesterol Metabolism
7. Eicosanoid Metabolism: Prostaglandins, Prostacyclins, Thromboxanes, Leukotrienes, and Lipoxins
8. Phospholipid and Glycolipid Metabolism
Chapter 26 Amino Acid Metabolism
1. Amino Acid Deamination
2. The Urea Cycle
3. Metabolic Breakdown of Individual Amino Acids
4. Amino Acids as Biosynthetic Precursors
5. Amino Acid Biosynthesis
6. Nitrogen Fixation
Chapter 27 Energy Metabolism: Integration and Organ Specialization
1. Major Pathways and Strategies of Energy Metabolism: A Summary
2. Organ Specialization
3. Metabolic Homeostasis: Regulation of Appetite, Energy Expenditure, and Body Weight
4. Metabolic Adaptation
Chapter 28 Nucleotide Metabolism
1. Synthesis of Purine Ribonucleotides
2. Synthesis of Pyrimidine Ribonucleotides
3. Formation of Deoxyribonucleotides
4. Nucleotide Degradation
5. Biosynthesis of Nucleotide Coenzymes

Part V Expression and Transmission of Genetic Information

Chapter 29 Nucleic Acid Structures

1. Double Helical Structures

2. Forces Stabilizing Nucleic Acid Structures

3. Supercoiled DNA

Chapter 30 DNA Replication, Repair, and Recombination

1. DNA Replication: An Overview

2. Enzymes of Replication

3. Prokaryotic Replication

4. Eukaryotic Replication

5. Repair of DNA

6. Recombination and Mobile Genetic Elements

7. DNA Methylation and Trinucleotide Repeat Expansions

Chapter 31 Transcription

1. The Role of RNA in Protein Synthesis

2. RNA Polymerase

3. Control of Transcription in Prokaryotes

4. Post-Transcriptional Processing

Chapter 32 Translation

1. The Genetic Code

2. Transfer RNA and Its Aminoacylation

3. Ribosomes

4. Control of Eukaryotic Translation

5. Post-Translational Modification

6. Protein Degradation

Chapter 33 Viruses: Paradigms for Cellular Function W-1

1. Tobacco Mosaic Virus W-3

2. Icosahedral Viruses W-8

3. Bacteriophage W-20

4. Influenza Virus W-40

Chapter 34 Eukaryotic Gene Expression

1. Chromosome Structure W-53

2. Genomic Organization W-68

3. Control of Expression W-83

4. Cell Differentiation W-121

Chapter 35 Molecular Physiology

1. Blood Clotting W-165

2. Immunity W-179

3. Motility: Muscles, Vesicle Transport, Cilia, and Flagella W-211

Index I-1 and WI-1

To purchase this product, please visit:
https://www.wileyindia.com/voet-s-biochemistry-adapted-ed-2021.html

Scan to buy