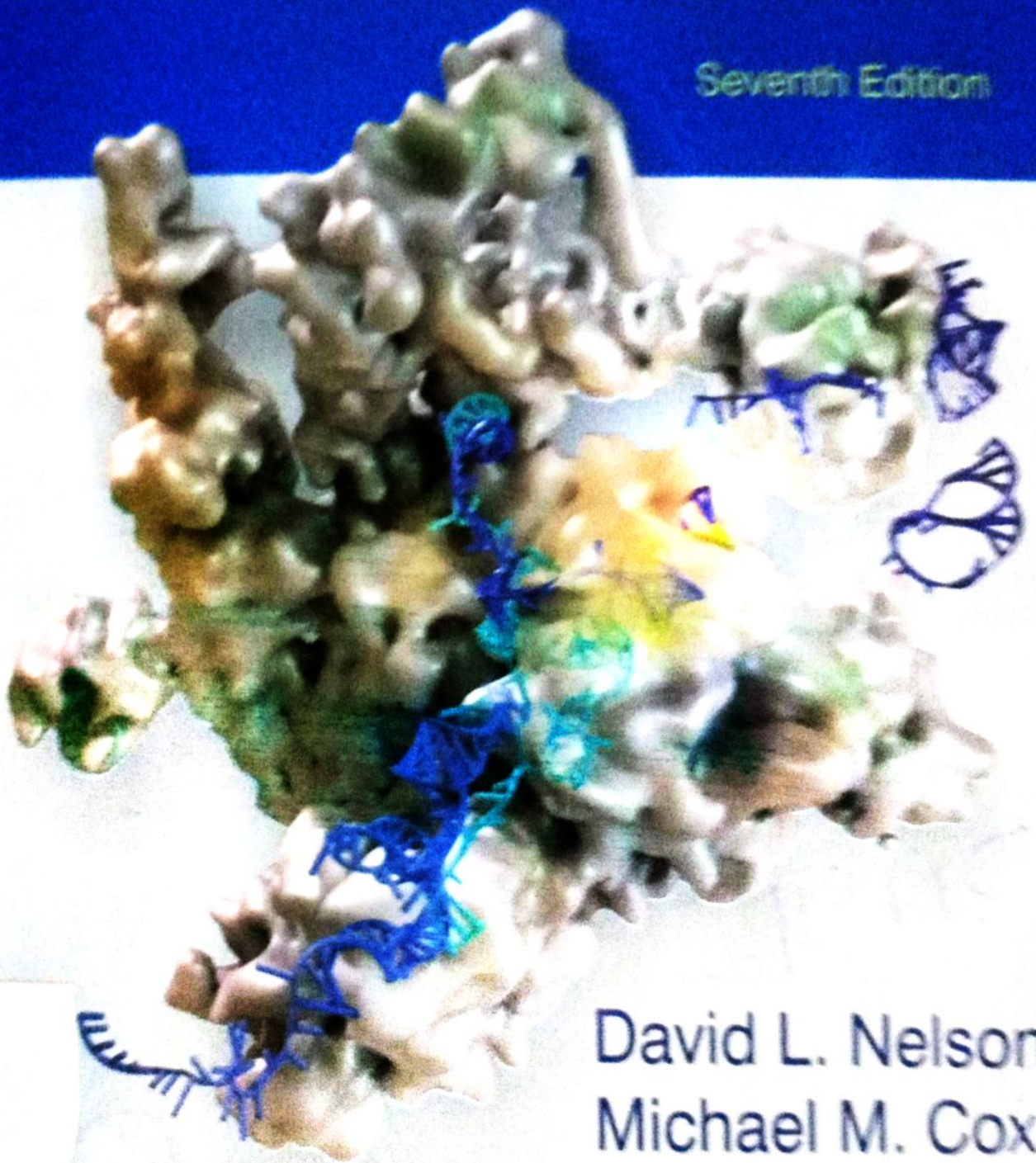


Lehninger

PRINCIPLES of BIOCHEMISTRY

Seventh Edition



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Contents in Brief

Contents

Preface

viii

1 The Foundations of Biochemistry

1

I STRUCTURE AND CATALYSIS

45

- 2 Water 47
- 3 Amino Acids, Peptides, and Proteins 75
- 4 The Three-Dimensional Structure of Proteins 115
- 5 Protein Function 157
- 6 Enzymes 187
- 7 Carbohydrates and Glycobiology 241
- 8 Nucleotides and Nucleic Acids 279
- 9 DNA-Based Information Technologies 319
- 10 Lipids 361
- 11 Biological Membranes and Transport 387
- 12 Biosignaling 437

II BIOENERGETICS AND METABOLISM

491

- 13 Bioenergetics and Biochemical Reaction Types 495
- 14 Glycolysis, Gluconeogenesis, and the Pentose Phosphate Pathway 533
- 15 Principles of Metabolic Regulation 575
- 16 The Citric Acid Cycle 619
- 17 Fatty Acid Catabolism 649
- 18 Amino Acid Oxidation and the Production of Urea 675
- 19 Oxidative Phosphorylation 711
- 20 Photosynthesis and Carbohydrate Synthesis in Plants 755
- 21 Lipid Biosynthesis 811
- 22 Biosynthesis of Amino Acids, Nucleotides, and Related Molecules 859
- 23 Hormonal Regulation and Integration of Mammalian Metabolism 907

III INFORMATION PATHWAYS

955

- 24 Genes and Chromosomes 957
- 25 DNA Metabolism 987
- 26 RNA Metabolism 1035
- 27 Protein Metabolism 1077
- 28 Regulation of Gene Expression 1127
- Abbreviated Solutions to Problems AS-1
- Glossary G-1
- Index I-1

1 The Foundations of Biochemistry

1.1 Cellular Foundations

Cells Are the Structural and Functional Units of All Living Organisms
Cellular Dimensions Are Limited by Diffusion
Organisms Belong to Three Distinct Domains of Life
Organisms Differ Widely in Their Sources of Energy and Biosynthetic Precursors
Bacterial and Archaeal Cells Share Common Features but Differ in Important Ways
Eukaryotic Cells Have a Variety of Membranous Organelles, Which Can Be Isolated for Study
The Cytoplasm Is Organized by the Cytoskeleton and Is Highly Dynamic
Cells Build Supramolecular Structures
In Vitro Studies May Overlook Important Interactions among Molecules

1.2 Chemical Foundations

Biomolecules Are Compounds of Carbon with a Variety of Functional Groups

BOX 1-1 Molecular Weight, Molecular Mass, and Their Correct Units

Cells Contain a Universal Set of Small Molecules
Macromolecules Are the Major Constituents of Cells
Three-Dimensional Structure Is Described by Configuration and Conformation

BOX 1-2 Louis Pasteur and Optical Activity: *In Vino, Veritas*
Interactions between Biomolecules Are Stereospecific

1.3 Physical Foundations

Living Organisms Exist in a Dynamic Steady State, Never at Equilibrium with Their Surroundings
Organisms Transform Energy and Matter from Their Surroundings

BOX 1-3 Entropy: Things Fall Apart

The Flow of Electrons Provides Energy for Organisms
Creating and Maintaining Order Requires Work and Energy

Energy Coupling Links Reactions in Biology
 K_m and ΔG° Are Measures of a Reaction's Tendency to Proceed Spontaneously

Enzymes Promote Sequences of Chemical Reactions
Metabolism Is Regulated to Achieve Balance

1.4 Genetic Foundations

Genetic Continuity Is Vested in Single DNA Molecules
The Structure of DNA Allows Its Replication and Repair with Near-Perfect Fidelity
The Linear Sequence in DNA Encodes Proteins with Three-Dimensional Structures

1.5 Evolutionary Foundations

Changes in the Hereditary Instructions Allow Evolution

Biomolecules First
RNA or Related
the First Gene
Biological Evolut
and a Half Bill
The First Cell Pro
Eukaryotic Cells
in Several Stag
Molecular Anato
Relationships
Functional Genom
Genes to Spec
Genomic Compar
in Human Biok

STRUCTURE AND

2 Water

2.1 Weak Interactions

Hydrogen Bonding
Properties
Water Forms Hydr
Water Interacts Ele
Solutes
Entropy Increases
Nonpolar Gases Ar
Nonpolar Compoun
Unfavorable Cha
of Water
van der Waals Inter
Attractions
Weak Interactions A
Structure and Fy
Solutes Affect the C
Solutions

2.2 Ionization of Water

Pure Water Is Slight
The Ionization of Wa
Equilibrium Cons
The pH Scale Desig
Concentrations
Weak Acids and Bas
Dissociation Cons
Titration Curves Rev

2.3 Buffering against pH

Buffers Are Mixtures
Conjugate Bases
The Henderson-Hass
 pK_a , and Buffer Co
Weak Acids or Bases
pH Changes
Untreated Diabetes P
Acidosis

BOX 2-1 MEDICINE On
(Don't Try This at Home)

2.4 Water as a

Biomolecules First Arise by Chemical Evolution RNA or Related Precursors May Have Been the First Genes and Catalysts	33	3 Amino Acids, Peptides, and Proteins	75
Biological Evolution Began More Than Three and a Half Billion Years Ago	34	3.1 Amino Acids	75
The First Cell Probably Used Inorganic Fuels	35	Amino Acids Share Common Structural Features	76
Eukaryotic Cells Evolved from Simpler Precursors in Several Stages	36	The Amino Acid Residues in Proteins Are L Stereoisomers	78
Molecular Anatomy Reveals Evolutionary Relationships	37	Amino Acids Can Be Classified by R Group	78
Functional Genomics Shows the Allocations of Genes to Specific Cellular Processes	37	BOX 3-1 METHODS Absorption of Light by Molecules: The Lambert-Beer Law	80
Genomic Comparisons Have Increasing Importance in Human Biology and Medicine	39	Uncommon Amino Acids Also Have Important Functions	81
	39	Amino Acids Can Act as Acids and Bases	81
		Amino Acids Have Characteristic Titration Curves	82
		Titration Curves Predict the Electric Charge of Amino Acids	84
		Amino Acids Differ in Their Acid-Base Properties	84
STRUCTURE AND CATALYSIS	45	3.2 Peptides and Proteins	85
2 Water	47	Peptides Are Chains of Amino Acids	85
2.1 Weak Interactions in Aqueous Systems	47	Peptides Can Be Distinguished by Their Ionization Behavior	86
Hydrogen Bonding Gives Water Its Unusual Properties	47	Biologically Active Peptides and Polypeptides Occur in a Vast Range of Sizes and Compositions	87
Water Forms Hydrogen Bonds with Polar Solutes	49	Some Proteins Contain Chemical Groups Other Than Amino Acids	88
Water Interacts Electrostatically with Charged Solute	50	3.3 Working with Proteins	89
Entropy Increases as Crystalline Substances Dissolve	51	Proteins Can Be Separated and Purified	89
Nonpolar Gases Are Poorly Soluble in Water	51	Proteins Can Be Separated and Characterized by Electrophoresis	92
Nonpolar Compounds Force Energetically Unfavorable Changes in the Structure of Water	51	Unseparated Proteins Can Be Quantified	95
van der Waals Interactions Are Weak Interatomic Attractions	53	3.4 The Structure of Proteins: Primary Structure	96
Weak Interactions Are Crucial to Macromolecular Structure and Function	54	The Function of a Protein Depends on Its Amino Acid Sequence	97
Solute Affects the Colligative Properties of Aqueous Solutions	55	The Amino Acid Sequences of Millions of Proteins Have Been Determined	97
2.2 Ionization of Water, Weak Acids, and Weak Bases	58	Protein Chemistry Is Enriched by Methods Derived from Classical Polypeptide Sequencing	98
Pure Water Is Slightly Ionized	58	Mass Spectrometry Offers an Alternative Method to Determine Amino Acid Sequences	100
The Ionization of Water Is Expressed by an Equilibrium Constant	59	Small Peptides and Proteins Can Be Chemically Synthesized	102
The pH Scale Designates the H^+ and OH^- Concentrations	60	Amino Acid Sequences Provide Important Biochemical Information	104
Weak Acids and Bases Have Characteristic Acid Dissociation Constants	61	Protein Sequences Help Elucidate the History of Life on Earth	104
Titration Curves Reveal the pK_a of Weak Acids	62	BOX 3-2 Consensus Sequences and Sequence Logos	105
2.3 Buffering against pH Changes in Biological Systems	63	4 The Three-Dimensional Structure of Proteins	115
Buffers Are Mixtures of Weak Acids and Their Conjugate Bases	64	4.1 Overview of Protein Structure	116
The Henderson-Hasselbalch Equation Relates pH, pK_a , and Buffer Concentration	64	A Protein's Conformation Is Stabilized Largely by Weak Interactions	116
Weak Acids or Bases Buffer Cells and Tissues against pH Changes	65	The Peptide Bond Is Rigid and Planar	117
Untreated Diabetes Produces Life-Threatening Acidosis	67	4.2 Protein Secondary Structure	119
BOX 2-1 MEDICINE On Being One's Own Rabbit (Don't Try This at Home!)	68	The α Helix Is a Common Protein Secondary Structure	120
2.4 Water as a Reactant	69	BOX 4-1 METHODS Knowing the Right Hand from the Left	121
2.5 The Fitness of the Aqueous Environment for Living Organisms	69	Amino Acid Sequence Affects Stability of the α Helix	121

The β -Conformation Organizes Polypeptide Chains into Sheets	122
β -Turns Are Common in Proteins	123
Common Secondary Structures Have Characteristic Dihedral Angles	123
Common Secondary Structures Can Be Assessed by Circular Dichroism	125
4.3 Protein Tertiary and Quaternary Structures	125
Fibrous Proteins Are Adapted for a Structural Function	126
BOX 4.1 Permanent Weaving Is Biochemical Engineering	127
BOX 4.2 MEDICINE Why Sailors, Engineers, and College Students Should Eat Their Fresh Fruits and Vegetables	128
Structural Diversity Reflects Functional Diversity in Globular Proteins	130
Myoglobin Provided Early Clues about the Complexity of Globular Protein Structure	131
BOX 4.3 The Protein Data Bank	132
Globular Proteins Have a Variety of Tertiary Structures	133
BOX 4.4 METHODS Methods for Determining the Three-Dimensional Structure of a Protein	134
Some Proteins or Protein Segments Are Intrinsically Disordered	138
Protein Motifs Are the Basis for Protein Structural Classification	139
Protein Quaternary Structures Range from Simple Dimers to Large Complexes	141
4.4 Protein Denaturation and Folding	142
Loss of Protein Structure Results in Loss of Function	143
Amino Acid Sequence Determines Tertiary Structure	144
Polypeptides Fold Rapidly by a Stepwise Process	144
Some Proteins Undergo Assisted Folding	145
Defects in Protein Folding Provide the Molecular Basis for a Wide Range of Human Genetic Disorders	147
BOX 4.5 MEDICINE Death by Misfolding: The Prion Diseases	150
5 Protein Function	157
5.1 Reversible Binding of a Protein to a Ligand: Oxygen-Binding Proteins	158
Oxygen Can Bind to a Heme Prosthetic Group	158
Oxygens Are a Family of Oxygen-Binding Proteins	159
Myoglobin Has a Single Binding Site for Oxygen	159
Protein-Ligand Interactions Can Be Described Quantitatively	160
Protein Structure Affects How Ligands Bind	162
Hemoglobin Transports Oxygen in Blood	162
Hemoglobin Behaves in Structurally Similar α and β Subunits	163
Hemoglobin Undergoes a Structural Change on Binding Oxygen	163
Hemoglobin Binds Oxygen Cooperatively	164
Cooperative Ligand Binding Can Be Described Quantitatively	165
Two Models Suggest Mechanisms for Cooperative Binding	166
	167

BOX 5.1 MEDICINE Carbon Monoxide: A Deadly Rival	
Hemoglobin Also Transports H^+ and CO_2	
Oxygen Binding to Hemoglobin Is Regulated by 2,3-Bisphosphoglycerate	
Sickle Cell Anemia Is a Molecular Disease of Hemoglobin	
5.2 Complementary Interactions between Proteins and Ligands: The Immune System and Immunoglobulins	
The Immune Response Includes a Specialized Array of Cells and Proteins	
Antibodies Have Two Identical Antigen-Binding Sites	
Antibodies Bind Tightly and Specifically to Antigen	
The Antibody-Antigen Interaction Is the Basis for a Variety of Important Analytical Procedures	
5.3 Protein Interactions Modulated by Chemical Energy: Actin, Myosin, and Molecular Motors	
The Major Proteins of Muscle Are Myosin and Actin	
Additional Proteins Organize the Thin and Thick Filaments into Ordered Structures	
Myosin Thick Filaments Slide along Actin Thin Filaments	
6 Enzymes	
6.1 An Introduction to Enzymes	
Most Enzymes Are Proteins	
Enzymes Are Classified by the Reactions They Catalyze	
6.2 How Enzymes Work	
Enzymes Affect Reaction Rates, Not Equilibria	
Reaction Rates and Equilibria Have Precise Thermodynamic Definitions	
A Few Principles Explain the Catalytic Power and Specificity of Enzymes	
Weak Interactions between Enzyme and Substrate Are Optimized in the Transition State	
Binding Energy Contributes to Reaction Specificity and Catalysis	
Specific Catalytic Groups Contribute to Catalysis	
6.3 Enzyme Kinetics as an Approach to Understanding Mechanism	
Substrate Concentration Affects the Rate of Enzyme-Catalyzed Reactions	
The Relationship between Substrate Concentration and Reaction Rate Can Be Expressed Quantitatively	
Kinetic Parameters Are Used to Compare Enzyme Activities	
BOX 6.1 Transformations of the Michaelis-Menten Equation: The Double-Reciprocal Plot	
Many Enzymes Catalyze Reactions with Two or More Substrates	
Enzyme Activity Depends on pH	
Pre-Steady State Kinetics Can Provide Evidence for Specific Reaction Steps	
Enzymes Are Subject to Reversible or Irreversible Inhibition	

Kinetic Tests for Determining Inhibition Mechanisms	209	Glycosaminoglycans Are Heteropolysaccharides of the Extracellular Matrix	258
MEDICINE Curing African Sleeping Sickness with a Biochemical Trojan Horse	211	7.3 Glycoconjugates: Proteoglycans, Glycoproteins, and Glycosphingolipids	261
6.4 Examples of Enzymatic Reactions	213	Proteoglycans Are Glycosaminoglycan-Containing Macromolecules of the Cell Surface and Extracellular Matrix	261
The Chymotrypsin Mechanism Involves Acylation and Deacylation of a Ser Residue	213	BOX 7.3 MEDICINE Defects in the Synthesis or Degradation of Sulfated Glycosaminoglycans Can Lead to Serious Human Disease	264
An Understanding of Protease Mechanisms Leads to New Treatments for HIV Infections	215	Glycoproteins Have Covalently Attached Oligosaccharides	265
Hexokinase Undergoes Induced Fit on Substrate Binding	218	Glycolipids and Lipopolysaccharides Are Membrane Components	266
The Enolase Reaction Mechanism Requires Metal Ions	220	7.4 Carbohydrates as Informational Molecules: The Sugar Code	267
Lysozyme Uses Two Successive Nucleophilic Displacement Reactions	220	Lectins Are Proteins That Read the Sugar Code and Mediate Many Biological Processes	268
An Understanding of Enzyme Mechanism Produces Useful Antibiotics	223	Lectin-Carbohydrate Interactions Are Highly Specific and Often Multivalent	271
6.5 Regulatory Enzymes	225	7.5 Working with Carbohydrates	272
Allosteric Enzymes Undergo Conformational Changes in Response to Modulator Binding	226	8 Nucleotides and Nucleic Acids	279
The Kinetic Properties of Allosteric Enzymes Diverge from Michaelis-Menten Behavior	227	8.1 Some Basics	279
Some Enzymes Are Regulated by Reversible Covalent Modification	228	Nucleotides and Nucleic Acids Have Characteristic Bases and Pentoses	279
Phosphoryl Groups Affect the Structure and Catalytic Activity of Enzymes	229	Phosphodiester Bonds Link Successive Nucleotides in Nucleic Acids	282
Multiple Phosphorylations Allow Exquisite Regulatory Control	230	The Properties of Nucleotide Bases Affect the Three-Dimensional Structure of Nucleic Acids	284
Some Enzymes and Other Proteins Are Regulated by Proteolytic Cleavage of an Enzyme Precursor	230	8.2 Nucleic Acid Structure	285
A Cascade of Proteolytically Activated Zymogens Leads to Blood Coagulation	232	DNA Is a Double Helix That Stores Genetic Information	285
Some Regulatory Enzymes Use Several Regulatory Mechanisms	235	DNA Can Occur in Different Three-Dimensional Forms	288
7 Carbohydrates and Glycobiology	241	Certain DNA Sequences Adopt Unusual Structures	289
7.1 Monosaccharides and Disaccharides	241	Messenger RNAs Code for Polypeptide Chains	290
The Two Families of Monosaccharides Are Aldoses and Ketoses	242	Many RNAs Have More Complex Three-Dimensional Structures	292
Monosaccharides Have Asymmetric Centers	242	8.3 Nucleic Acid Chemistry	295
The Common Monosaccharides Have Cyclic Structures	243	Double-Helical DNA and RNA Can Be Denatured	295
Organisms Contain a Variety of Hexose Derivatives	247	Nucleotides and Nucleic Acids Undergo Nonenzymatic Transformations	297
MEDICINE Blood Glucose Measurements in the Diagnosis and Treatment of Diabetes	248	Some Bases of DNA Are Methylated	299
Monosaccharides Are Reducing Agents	249	The Chemical Synthesis of DNA Has Been Automated	301
Disaccharides Contain a Glycosidic Bond	250	Gene Sequences Can Be Amplified with the Polymerase Chain Reaction	301
Sugar Is Sweet, and So Are . . . a Few Other Things	252	The Sequences of Long DNA Strands Can Be Determined	302
7.2 Polysaccharides	252	BOX 8.1 A Potent Weapon in Forensic Medicine	304
Some Homopolysaccharides Are Storage Forms of Fuel	253	DNA Sequencing Technologies Are Advancing Rapidly	306
Some Homopolysaccharides Serve Structural Roles	254	8.4 Other Functions of Nucleotides	310
Steric Factors and Hydrogen Bonding Influence Homopolysaccharide Folding	256	Nucleotides Carry Chemical Energy in Cells	310
Bacterial and Algal Cell Walls Contain Structural Heteropolysaccharides	258	Adenine Nucleotides Are Components of Many Enzyme Cofactors	311

Genes Encoded for Respiratory Mitochondria
 Mitochondria Also Have an Inherited

311
 312

Waxes Serve as Energy Stores and Water
 Repellents

6 DNA-Based Information Technologies

319

6.1 Studying Genes and Their Products

320

Genes Can Be Isolated by DNA Cloning
 Restriction Endonucleases and DNA Ligases Yield
 Recombinant DNA
 Cloning Vectors Allow Amplification of Inserted
 DNA Segments
 Cloned Genes Can Be Expressed to Amplify
 Protein Production
 Many Inherited Diseases Are Used to Express
 Recombinant Proteins
 Alteration of Cloned Genes Produces Altered
 Proteins
 Terminal Tags Provide Handles for Affinity
 Purification
 The Polymerase Chain Reaction Can Be Adapted
 for Genomewide Cloning

320
 321
 324
 327
 328
 329
 332
 333

6.2 Using DNA-Based Methods to Understand Protein Function

335

DNA Libraries Are Specialized Catalogs of
 Genetic Information
 Sequence or Structural Relationships Provide
 Information on Protein Function
 Fusion Proteins and Immunofluorescence Can
 Reveal the Location of Proteins in Cells
 Protein-Protein Interactions Can Help Elucidate
 Protein Function
 DNA Microarrays Reveal RNA Expression
 Patterns and Other Information
 Inactivating or Altering a Gene with CRISPR
 Can Reveal Gene Function

335
 336
 336
 336
 338
 341
 342

6.3 Genomics and the Human Story

344

PERSONALIZED MEDICINE Personalized Genomic Medicine
 Annotation Provides a Description of the Genome
 The Human Genome Contains Many Types of
 Sequences
 Genome Sequencing Informs Us about Our
 Humanity
 Genome Comparisons Help Locate Genes
 Involved in Disease
 Genome Sequences Inform Us about Our Past
 and Provide Opportunities for the Future
PERSONALIZED MEDICINE Getting to Know Humanity's Next of Kin

344
 345
 346
 346
 348
 348
 350
 351

10 Lipids

10.1 Storage Lipids

361

Fatty Acids Are Hydrocarbon Derivatives
 Triacylglycerols Are Fatty Acid Esters of Glycerol
 Triacylglycerols Provide Stored Energy and
 Insulation
 Partial Hydrogenation of Cooking Oils Improves
 Their Stability but Causes Fatty Acids with
 Harmful Health Effects

361
 361
 364
 364
 365

10.2 Structural Lipids in Membranes

Phospholipids Are Derivatives of
 Phosphoric Acid
 Some Phospholipids Have Extra-Lipid
 Fatty Acids
 Cholesterol Contains Stereocyclic and
 Hydroxyl Groups
 Arachidonic Acid Is a Membrane Lipid
 Sphingolipids Are Derivatives of Sphingosine
 Sphingolipids at Cell Surfaces Are Sites of
 Molecular Recognition
 Phospholipids and Sphingolipids Are Degraded
 in Lysosomes
 Steroids Have Four Fused Carbon Rings
PERSONALIZED MEDICINE Abnormal Accumulation of
 Membrane Lipids: Some Inherited Human Diseases

10.3 Lipids as Signals, Cofactors, and Pigments

Phosphatidylinositols and Sphingosine
 Derivatives Act as Intracellular Signals
 Eicosanoids Carry Messages to Nearby Cells
 Steroid Hormones Carry Messages between
 Tissues
 Vascular Plants Produce Thousands of Volatile
 Signals
 Vitamin A and D Are Hormone Precursors
 Vitamin E and K and the Lipid Quinones
 Are Oxidation-Reduction Cofactors
 Polysaccharides Activate Sugar Precursors for
 Glycosylation
 Many Natural Pigments Are Lipidic Conjugates
 Dienes
 Polyketides Are Natural Products with Potent
 Biological Activities

10.4 Working with Lipids

Lipid Extraction Requires Organic Solvents
 Adsorption Chromatography Separates Lipids
 of Different Polarity
 Gas Chromatography Resolves Mixtures
 of Volatile Lipid Derivatives
 Specific Hydrolysis Aids in Determination of
 Lipid Structure
 Mass Spectrometry Reveals Complete Lipid
 Structure
 Lipidomics Seeks to Catalog All Lipids and Their
 Functions

11 Biological Membranes and Transport

11.1 The Composition and Architecture of Membranes

Each Type of Membrane Has Characteristic
 Lipids and Proteins
 All Biological Membranes Share Some
 Fundamental Properties
 A Lipid Bilayer Is the Basic Structural
 Framework of Membranes

387
 388
 388
 388
 389

Three Types of Membrane Proteins Differ in the Nature of Their Association with the Membrane	301	12 Biosignaling	437
Many Integral Membrane Proteins Span the Lipid Bilayer	302	12.1 General Features of Signal Transduction	437
Hydrophobic Regions of Integral Proteins Associate with Membrane Lipids	303	12.2 G Protein-Coupled Receptors and Second Messengers	440
The Topology of an Integral Membrane Protein Can Often Be Predicted from Its Sequence	304	The β Adrenergic Receptor System Acts through the Second Messenger cAMP	441
Covalently Attached Lipids Anchor Some Membrane Proteins	305	BOX 12.1 G Proteins: Binary Switches in Health and Disease	444
Amphiprotic Proteins Associate Reversibly with the Membrane	307	Several Mechanisms Cause Termination of the β Adrenergic Response	447
11.2 Membrane Dynamics	397	The β Adrenergic Receptor Is Desensitized by Phosphorylation and by Association with Arrestin	448
Acyl Groups in the Bilayer Interior Are Ordered to Varying Degrees	397	Cyclic AMP Acts as a Second Messenger for Many Regulatory Molecules	449
Transbilayer Movement of Lipids Requires Catalysis	398	Diacylglycerol, Inositol Triphosphate, and Ca^{2+} Have Related Roles as Second Messengers	451
Lipids and Proteins Diffuse Laterally in the Bilayer	399	BOX 12.2 METHODS FRET: Biochemistry Visualized in a Living Cell	452
Sphingolipids and Cholesterol Cluster Together in Membrane Rafts	401	Calcium Is a Second Messenger That Is Localized in Space and Time	452
Membrane Curvature and Fusion Are Central to Many Biological Processes	402	12.3 GPCRs in Vision, Olfaction, and Gustation	456
Integral Proteins of the Plasma Membrane Are Involved in Surface Adhesion, Signaling, and Other Cellular Processes	405	The Vertebrate Eye Uses Classic GPCR Mechanisms	456
11.3 Solute Transport across Membranes	405	BOX 12.3 MEDICINE Color Blindness: John Dalton's Experiment from the Grave	458
Transport May Be Passive or Active	406	Vertebrate Olfaction and Gustation Use Mechanisms Similar to the Visual System	459
Transporters and Ion Channels Share Some Structural Properties but Have Different Mechanisms	406	All GPCR Systems Share Universal Features	459
The Glucose Transporter of Erythrocytes Mediates Passive Transport	408	12.4 Receptor Tyrosine Kinases	461
The Chloride-Bicarbonate Exchanger Catalyzes Electroneutral Cotransport of Anions across the Plasma Membrane	410	Stimulation of the Insulin Receptor Initiates a Cascade of Protein Phosphorylation Reactions	461
BOX 11.1 MEDICINE Defective Glucose and Water Transport in Two Forms of Diabetes	411	The Membrane Phospholipid PIP_3 Functions at a Branch in Insulin Signaling	463
Active Transport Results in Solute Movement against a Concentration or Electrochemical Gradient	412	Cross Talk among Signaling Systems Is Common and Complex	465
P-Type ATPases Undergo Phosphorylation during Their Catalytic Cycles	413	12.5 Receptor Guanylyl Cyclases, cGMP, and Protein Kinase G	466
V-Type and F-Type ATPases Are ATP-Driven Proton Pumps	416	12.6 Multivalent Adaptor Proteins and Membrane Rafts	467
ABC Transporters Use ATP to Drive the Active Transport of a Wide Variety of Substrates	417	Protein Modules Bind Phosphorylated Tyr, Ser, or Thr Residues in Partner Proteins	468
Ion Gradients Provide the Energy for Secondary Active Transport	418	Membrane Rafts and Caveolae Segregate Signaling Proteins	470
BOX 11.2 MEDICINE A Defective Ion Channel in Cystic Fibrosis	419	12.7 Gated Ion Channels	471
Aquaporins Form Hydrophilic Transmembrane Channels for the Passage of Water	423	Ion Channels Underlie Electrical Signaling in Excitable Cells	471
Ion-Selective Channels Allow Rapid Movement of Ions across Membranes	425	Voltage-Gated Ion Channels Produce Neuronal Action Potentials	472
Ion-Channel Function Is Measured Electrically	425	Neurons Have Receptor Channels That Respond to Different Neurotransmitters	473
The Structure of a K^+ Channel Reveals the Basis for Its Specificity	426	Toxins Target Ion Channels	473
Gated Ion Channels Are Central in Neuronal Function	427	12.8 Regulation of Transcription by Nuclear Hormone Receptors	473
Defective Ion Channels Can Have Severe Physiological Consequences	430		

12.9 Signaling in Microorganisms and Plants	475
Bacterial Signaling Entails Phosphorylation in a Two-Component System	476
Signaling Systems of Plants Have Some of the Same Components Used by Microbes and Mammals	476
12.10 Regulation of the Cell Cycle by Protein Kinases	476
The Cell Cycle Has Four Stages	476
Levels of Cyclin-Dependent Protein Kinases Oscillate	477
CDKs Regulate Cell Division by Phosphorylating Critical Proteins	479
12.11 Oncogenes, Tumor Suppressor Genes, and Programmed Cell Death	481
Oncogenes Are Mutant Forms of the Genes for Proteins That Regulate the Cell Cycle	481
BOX 12.11 MEDICINE Development of Protein Kinase Inhibitors for Cancer Treatment	482
Defects in Certain Genes Remove Normal Restraints on Cell Division	484
Apoptosis Is Programmed Cell Suicide	485

II BIOENERGETICS AND METABOLISM 491

13 Bioenergetics and Biochemical Reaction Types	495
13.1 Bioenergetics and Thermodynamics	496
Biological Energy Transformations Obey the Laws of Thermodynamics	496
Cells Require Sources of Free Energy	497
Standard Free-Energy Change Is Directly Related to the Equilibrium Constant	497
Actual Free-Energy Changes Depend on Reactant and Product Concentrations	499
Standard Free-Energy Changes Are Additive	500
13.2 Chemical Logic and Common Biochemical Reactions	501
Biochemical and Chemical Equations Are Not Identical	506
13.3 Phosphoryl Group Transfers and ATP	507
The Free-Energy Change for ATP Hydrolysis Is Large and Negative	507
Other Phosphorylated Compounds and Thioesters Also Have Large Free Energies of Hydrolysis	509
ATP Provides Energy by Group Transfers, Not by Simple Hydrolysis	511
ATP Donates Phosphoryl, Pyrophosphoryl, and Adenyl Groups	513
Assembly of Informational Macromolecules Requires Energy	514
ATP Energizes Active Transport and Muscle Contraction	514
BOX 13.3 Firefly Flashes: Glowing Reports of ATP Transphosphorylation between Nucleotides Occur in All Cell Types	515
	516

Intermittent Phosphorylation Is a Potential Phosphoryl Group Donor

13.4 Biological Oxidation-Reduction Reactions	511
The Flow of Electrons from Low-Potential to High-Potential Redox Pairs Can Be Coupled to the Flow of Protons	511
Half-Reactions	511
Biological Oxidations Often Involve Dehydrogenation	511
Reduction Potentials Measure Affinity for Electrons	511
Standard Reduction Potentials Can Be Used to Calculate Free-Energy Change	511
Cellular Oxidation of Glucose to Carbon Dioxide Requires Specialized Electron Carriers	511
A Few Types of Coenzymes and Prosthetic Groups as Universal Electron Carriers	511
NADH and NADPH Act with Dehydrogenases as Soluble Electron Carriers	511
NAD Has Important Functions in Addition to Electron Transfer	511
Dietary Deficiency of Niacin, the Vitamin Form of NAD and NADP, Causes Pellagra	511
Flavin Nucleotides Are Tightly Bound in Flavoproteins	511

14 Glycolysis, Gluconeogenesis, and the Pentose Phosphate Pathway

14.1 Glycolysis	511
An Overview: Glycolysis Has Two Phases	511
The Preparatory Phase of Glycolysis Requires ATP	511
The Payoff Phase of Glycolysis Yields ATP and NADH	511
The Overall Balance Sheet Shows a Net Gain of ATP	511
Glycolysis Is under Tight Regulation	511
BOX 14.1 MEDICINE High Rate of Glycolysis in Tumors Suggests Targets for Chemotherapy and Facilitates Diagnosis	511
Glucose Uptake Is Deficient in Type 1 Diabetes Mellitus	511
14.2 Feeder Pathways for Glycolysis	511
Dietary Polysaccharides and Disaccharides Undergo Hydrolysis to Monosaccharides	511
Endogenous Glycogen and Starch Are Degraded by Phosphorolysis	511
Other Monosaccharides Enter the Glycolytic Pathway at Several Points	511
14.3 Fates of Pyruvate under Anaerobic Conditions: Fermentation	511
Pyruvate Is the Terminal Electron Acceptor in Lactic Acid Fermentation	511
BOX 14.2 Athletes, Alligators, and Coelacanths: Glycolysis at Limiting Concentrations of Oxygen	511
Ethanol Is the Reduced Product in Ethanol Fermentation	511
Thiamine Pyrophosphate Carries "Active Acetaldehyde" Groups	511

BOX 14-3 Ethanol Fermentations: Brewing Beer and Producing Biofuels	556	Metabolic Control Analysis Suggests a General Method for Increasing Flux through a Pathway	588
14.4 Gluconeogenesis	558	15.3 Coordinated Regulation of Glycolysis and Gluconeogenesis	589
Conversion of Pyruvate to Phosphoenolpyruvate Requires Two Exergonic Reactions	560	Hexokinase Isozymes of Muscle and Liver Are Affected Differently by Their Product, Glucose 6-Phosphate	590
Conversion of Fructose 1,6-Bisphosphate to Fructose 6-Phosphate Is the Second Bypass	562	BOX 15-2 Isozymes: Different Proteins That Catalyze the Same Reaction	590
Conversion of Glucose 6-Phosphate to Glucose Is the Third Bypass	563	Hexokinase IV (Glucokinase) and Glucose 6-Phosphatase Are Transcriptionally Regulated	592
Gluconeogenesis Is Energetically Expensive, but Essential	563	Phosphofructokinase-1 and Fructose 1,6-Bisphosphatase Are Reciprocally Regulated	592
Citric Acid Cycle Intermediates and Some Amino Acids Are Glucogenic	563	Fructose 2,6-Bisphosphate Is a Potent Allosteric Regulator of PFK-1 and FBPase-1	593
Mammals Cannot Convert Fatty Acids to Glucose	564	Xylulose 5-Phosphate Is a Key Regulator of Carbohydrate and Fat Metabolism	593
Glycolysis and Gluconeogenesis Are Reciprocally Regulated	564	The Glycolytic Enzyme Pyruvate Kinase Is Allosterically Inhibited by ATP	595
14.5 Pentose Phosphate Pathway of Glucose Oxidation	565	The Gluconeogenic Conversion of Pyruvate to Phosphoenolpyruvate Is under Multiple Types of Regulation	595
The Oxidative Phase Produces Pentose Phosphates and NADPH	565	Transcriptional Regulation of Glycolysis and Gluconeogenesis Changes the Number of Enzyme Molecules	596
BOX 14-4 MEDICINE Why Pythagoras Wouldn't Eat Falafel: Glucose 6-Phosphate Dehydrogenase Deficiency	566	BOX 15-3 MEDICINE Genetic Mutations That Lead to Rare Forms of Diabetes	599
The Nonoxidative Phase Recycles Pentose Phosphates to Glucose 6-Phosphate	567	15.4 The Metabolism of Glycogen in Animals	601
Wernicke-Korsakoff Syndrome Is Exacerbated by a Defect in Transketolase	569	Glycogen Breakdown Is Catalyzed by Glycogen Phosphorylase	601
Glucose 6-Phosphate Is Partitioned between Glycolysis and the Pentose Phosphate Pathway	570	Glucose 1-Phosphate Can Enter Glycolysis or, in Liver, Replenish Blood Glucose	601
15 Principles of Metabolic Regulation	575	The Sugar Nucleotide UDP-Glucose Donates Glucose for Glycogen Synthesis	603
15.1 Regulation of Metabolic Pathways	576	BOX 15-4 Carl and Gerty Cori: Pioneers in Glycogen Metabolism and Disease	604
Cells and Organisms Maintain a Dynamic Steady State	577	Glycogenin Primes the Initial Sugar Residues in Glycogen	607
Both the Amount and the Catalytic Activity of an Enzyme Can Be Regulated	577	15.5 Coordinated Regulation of Glycogen Breakdown and Synthesis	608
Reactions Far from Equilibrium in Cells Are Common Points of Regulation	580	Glycogen Phosphorylase Is Regulated Allosterically and Hormonally	608
Adenine Nucleotides Play Special Roles in Metabolic Regulation	582	Glycogen Synthase Is Also Regulated by Phosphorylation and Dephosphorylation	609
15.2 Analysis of Metabolic Control	584	Glycogen Synthase Kinase 3 Mediates Some of the Actions of Insulin	61
The Contribution of Each Enzyme to Flux through a Pathway Is Experimentally Measurable	584	Phosphoprotein Phosphatase 1 Is Central to Glycogen Metabolism	61
The Flux Control Coefficient Quantifies the Effect of a Change in Enzyme Activity on Metabolite Flux through a Pathway	585	Allosteric and Hormonal Signals Coordinate Carbohydrate Metabolism Globally	6
The Elasticity Coefficient Is Related to an Enzyme's Responsiveness to Changes in Metabolite or Regulator Concentrations	585	Carbohydrate and Lipid Metabolism Are Integrated by Hormonal and Allosteric Mechanisms	6
BOX 15-1 METHODS Metabolic Control Analysis: Quantitative Aspects	586	16 The Citric Acid Cycle	
The Response Coefficient Expresses the Effect of an Outside Controller on Flux through a Pathway	587	16.1 Production of Acetyl-CoA (Activated Acetate)	
Metabolic Control Analysis Has Been Applied to Carbohydrate Metabolism, with Surprising Results	588	Pyruvate Is Oxidized to Acetyl-CoA and CO ₂	

The Pyruvate Dehydrogenase Complex Employs Five Coenzymes	621
The Pyruvate Dehydrogenase Complex Consists of Three Distinct Enzymes	621
In Substrate Channelling, Intermediates Never Leave the Enzyme Surface	623
16.2 Reactions of the Citric Acid Cycle	624
The Sequence of Reactions in the Citric Acid Cycle Makes Chemical Sense	624
The Citric Acid Cycle Has Eight Steps	626
BOX 16-1 Moonlighting Enzymes: Proteins with More Than One Job	628
BOX 16-2 Synthases and Synthetases; Ligases and Lyases; Kinases, Phosphatases, and Phosphorylases: Yes, the Names Are Confusing!	631
The Energy of Oxidations in the Cycle Is Efficiently Conserved	633
BOX 16-3 Citrate: A Symmetric Molecule That Reacts Asymmetrically	634
Why Is the Oxidation of Acetate So Complicated?	635
Citric Acid Cycle Components Are Important Biosynthetic Intermediates	636
Anaplerotic Reactions Replenish Citric Acid Cycle Intermediates	636
Biotin in Pyruvate Carboxylase Carries CO ₂ Groups	638
16.3 Regulation of the Citric Acid Cycle	640
Production of Acetyl-CoA by the Pyruvate Dehydrogenase Complex Is Regulated by Allosteric and Covalent Mechanisms	640
The Citric Acid Cycle Is Regulated at Its Three Exergonic Steps	641
Substrate Channelling through Multienzyme Complexes May Occur in the Citric Acid Cycle	641
Some Mutations in Enzymes of the Citric Acid Cycle Lead to Cancer	642
17 Fatty Acid Catabolism	649
17.1 Digestion, Mobilization, and Transport of Fats	650
Dietary Fats Are Absorbed in the Small Intestine	650
Hormones Trigger Mobilization of Stored Triacylglycerols	651
Fatty Acids Are Activated and Transported into Mitochondria	652
17.2 Oxidation of Fatty Acids	654
The β Oxidation of Saturated Fatty Acids Has Four Basic Steps	655
The Four β -Oxidation Steps Are Repeated to Yield Acetyl-CoA and ATP	656
Acetyl-CoA Can Be Further Oxidized in the Citric Acid Cycle	657
BOX 17-1 A Long Winter's Nap: Oxidizing Fats during Hibernation	658
Oxidation of Unsaturated Fatty Acids Requires Two Additional Reactions	659
Complete Oxidation of Odd-Number Fatty Acids Requires Three Extra Reactions	660
Fatty Acid Oxidation Is Tightly Regulated	661
BOX 17-2 Coenzyme B₁₂: A Radical Solution to a Perplexing Problem	661
Transcription Factors Turn on the Synthesis of Proteins for Lipid Catabolism	663
Genetic Defects in Fatty Acyl-CoA Dehydrogenases Cause Serious Disease	664
Peroxisomes Also Carry Out β Oxidation	665
The β -Oxidation Enzymes of Different Organelles Have Diverged during Evolution	666
The ω Oxidation of Fatty Acids Occurs in the Endoplasmic Reticulum	667
Phytanic Acid Undergoes α Oxidation in Peroxisomes	668
17.3 Ketone Bodies	675
Ketone Bodies, Formed in the Liver, Are Exported to Other Organs as Fuel	676
Ketone Bodies Are Overproduced in Diabetes and during Starvation	677
18 Amino Acid Oxidation and the Production of Urea	679
18.1 Metabolic Fates of Amino Groups	680
Dietary Protein Is Enzymatically Degraded to Amino Acids	682
Pyridoxal Phosphate Participates in the Transfer of α -Amino Groups to α -Ketoglutarate	683
Glutamate Releases Its Amino Group as Ammonia in the Liver	684
Glutamine Transports Ammonia in the Bloodstream	685
Alanine Transports Ammonia from Skeletal Muscles to the Liver	686
Ammonia Is Toxic to Animals	687
18.2 Nitrogen Excretion and the Urea Cycle	688
Urea Is Produced from Ammonia in Five Enzymatic Steps	689
The Citric Acid and Urea Cycles Can Be Linked	690
The Activity of the Urea Cycle Is Regulated at Two Levels	691
BOX 18-1 MEDICINE Assays for Tissue Damage	692
Pathway Interconnections Reduce the Energetic Cost of Urea Synthesis	693
Genetic Defects in the Urea Cycle Can Be Life-Threatening	694
18.3 Pathways of Amino Acid Degradation	695
Some Amino Acids Are Converted to Glucose, Others to Ketone Bodies	696
Several Enzyme Cofactors Play Important Roles in Amino Acid Catabolism	697
Six Amino Acids Are Degraded to Pyruvate	698
Seven Amino Acids Are Degraded to Acetyl-CoA	699
Phenylalanine Catabolism Is Genetically Defective in Some People	700
Five Amino Acids Are Converted to α -Ketoglutarate	701
Four Amino Acids Are Converted to Succinyl-CoA	702
Branched-Chain Amino Acids Are N	703
in the Liver	704

Asparagine and Aspartate Are Degraded to Oxaloacetate	703	ATP-Producing Pathways Are Coordinately Regulated	743
BOX 18-2 MEDICINE Scientific Sleuths Solve a Murder Mystery	704		
19. Oxidative Phosphorylation	711	19.4 Mitochondria in Thermogenesis, Steroid Synthesis, and Apoptosis	744
19.1 The Mitochondrial Respiratory Chain	712	Uncoupled Mitochondria in Brown Adipose Tissue Produce Heat	744
Electrons Are Funneled to Universal Electron Acceptors	712	Mitochondrial P-450 Monooxygenases Catalyze Steroid Hydroxylations	744
Electrons Pass through a Series of Membrane-Bound Carriers	714	Mitochondria Are Central to the Initiation of Apoptosis	745
Electron Carriers Function in Multienzyme Complexes	717		
Mitochondrial Complexes Associate in Respirasomes	722	19.5 Mitochondrial Genes: Their Origin and the Effects of Mutations	746
Other Pathways Donate Electrons to the Respiratory Chain via Ubiquinone	723	Mitochondria Evolved from Endosymbiotic Bacteria	746
BOX 19-1 METHODS Determining Three-Dimensional Structures of Large Macromolecular Complexes by Single-Particle Cryo-Electron Microscopy	724	Mutations in Mitochondrial DNA Accumulate throughout the Life of the Organism	747
The Energy of Electron Transfer Is Efficiently Conserved in a Proton Gradient	724	Some Mutations in Mitochondrial Genomes Cause Disease	748
Reactive Oxygen Species Are Generated during Oxidative Phosphorylation	726	A Rare Form of Diabetes Results from Defects in the Mitochondria of Pancreatic β Cells	749
Plant Mitochondria Have Alternative Mechanisms for Oxidizing NADH	727		
BOX 19-2 Hot, Stinking Plants and Alternative Respiratory Pathways	728	20 Photosynthesis and Carbohydrate Synthesis in Plants	755
19.2 ATP Synthesis	728	20.1 Light Absorption	756
In the Chemiosmotic Model, Oxidation and Phosphorylation Are Obligately Coupled	729	Chloroplasts Are the Site of Light-Driven Electron Flow and Photosynthesis in Plants	756
ATP Synthase Has Two Functional Domains, F_0 and F_1	731	Chlorophylls Absorb Light Energy for Photosynthesis	759
ATP Is Stabilized Relative to ADP on the Surface of F_1	732	Accessory Pigments Extend the Range of Light Absorption	759
The Proton Gradient Drives the Release of ATP from the Enzyme Surface	732	Chlorophylls Funnel Absorbed Energy to Reaction Centers by Exciton Transfer	761
Each β Subunit of ATP Synthase Can Assume Three Different Conformations	733		
Rotational Catalysis Is Key to the Binding-Change Mechanism for ATP Synthesis	735	20.2 Photochemical Reaction Centers	763
How Does Proton Flow through the F_0 Complex Produce Rotary Motion?	735	Photosynthetic Bacteria Have Two Types of Reaction Center	763
BOX 19-3 Atomic Force Microscopy to Visualize Membrane Proteins	737	Kinetic and Thermodynamic Factors Prevent the Dissipation of Energy by Internal Conversion	766
Chemiosmotic Coupling Allows Nonintegral Stoichiometries of O_2 Consumption and ATP Synthesis	738	In Plants, Two Reaction Centers Act in Tandem	766
The Proton-Motive Force Energizes Active Transport	738	The Cytochrome b_6f Complex Links Photosystems II and I	770
Shuttle Systems Indirectly Convey Cytosolic NADH into Mitochondria for Oxidation	739	Cyclic Electron Flow between PSI and the Cytochrome b_6f Complex Increases the Production of ATP Relative to NADPH	771
19.3 Regulation of Oxidative Phosphorylation	741	State Transitions Change the Distribution of LHCII between the Two Photosystems	771
Oxidative Phosphorylation Is Regulated by Cellular Energy Needs	741	Water Is Split by the Oxygen-Evolving Complex	773
An Inhibitory Protein Prevents ATP Hydrolysis during Hypoxia	741		
Hypoxia Leads to ROS Production and Several Adaptive Responses	742	20.3 ATP Synthesis by Photophosphorylation	774
		A Proton Gradient Couples Electron Flow and Phosphorylation	774
		The Approximate Stoichiometry of Photophosphorylation Has Been Established	775
		The ATP Synthase of Chloroplasts Resembles That of Mitochondria	775
		20.4 Evolution of Oxygenic Photosynthesis	776
		Chloroplasts Evolved from Ancient Photosynthetic Bacteria	776

in Halobacterium, a Single Protein Absorbs Light and Pumps Protons to Drive ATP Synthesis	778	Fatty Acid Biosynthesis in Tightly Membrane-Linked Chain Reactions: Fatty Acids Are Synthesized from Pyruvate	780
20.5 Carbon Assimilation Reactions	780	Distribution of Fatty Acid Reactions: A Mixed-Function Oxidase	780
Carbon Dioxide Assimilation Occurs in Three Stages	780	US/2002 MEDICINE Oxidases, Oxygenases, Cytochrome P-450 Enzymes, and Drug Oxidation	780
Synthesis of Each Triose Phosphate from CO_2 Requires Six NADPH and Nine ATP	780	Enzymes Are Formed from 26- and 22-Carbon Polyunsaturated Fatty Acids	780
A Transport System Exports Triose Phosphates from the Chloroplast and Imports Phosphate	780	21.2 Biosynthesis of Triacylglycerols	780
Four Enzymes of the Calvin Cycle Are Indirectly Activated by Light	780	Triacylglycerols and Glycerophospholipids Are Synthesized from the Same Precursors	780
20.6 Photorespiration and the C_4 and CAM Pathways	792	Triacylglycerol Biosynthesis in Animals Is Regulated by Hormones	780
Photorespiration Results from Rubisco's Oxygenase Activity	792	Adipose Tissue Generates Glycerol 3-Phosphate by Glyceroneogenesis	780
The Salvage of Phosphoglycolate Is Costly	792	Thiazolidinediones Treat Type 2 Diabetes by Increasing Glyceroneogenesis	780
In C_4 Plants, CO_2 Fixation and Rubisco Activity Are Spatially Separated	794	21.3 Biosynthesis of Membrane Phospholipids	780
US/2002 Will Genetic Engineering of Photosynthetic Organisms Increase Their Efficiency?	796	Cells Have Two Strategies for Attaching Phospholipid Head Groups	780
In CAM Plants, CO_2 Capture and Rubisco Activity Are Temporally Separated	796	Phospholipid Synthesis in <i>E. coli</i> Employs CDP-Diacylglycerol	780
20.7 Biosynthesis of Starch, Sucrose, and Cellulose	798	Eukaryotes Synthesize Amino Phospholipids from CDP-Diacylglycerol	780
ADP-Glucose Is the Substrate for Starch Synthesis in Plant Plastids and for Glycogen Synthesis in Bacteria	798	Eukaryotic Pathways to Phosphatidylserine, Phosphatidylethanolamine, and Phosphatidylcholine Are Interrelated	780
UDP-Glucose Is the Substrate for Sucrose Synthesis in the Cytosol of Leaf Cells	799	Phospholipid Synthesis Requires Formation of an Ether-Linked Fatty Alcohol	780
Conversion of Triose Phosphates to Sucrose and Starch Is Tightly Regulated	799	Sphingolipid and Glycerophospholipid Synthesis Share Precursors and Some Mechanisms	780
The Glyoxylate Cycle and Glyceroneogenesis Produce Glucose in Germinating Seeds	800	Polar Lipids Are Targeted to Specific Cellular Membranes	780
Cellulose Is Synthesized by Supramolecular Structures in the Plasma Membrane	802	21.4 Cholesterol, Steroids, and Isoprenoids: Biosynthesis, Regulation, and Transport	802
20.8 Integration of Carbohydrate Metabolism in Plants	804	Cholesterol Is Made from Acetyl-CoA in Four Stages	802
Paths of Common Intermediates Link Pathways in Different Organelles	804	Cholesterol Has Several Poles	802
21 Lipid Biosynthesis	804	Cholesterol and Other Lipids Are Carried on Plasma Lipoproteins	802
21.1 Biosynthesis of Fatty Acids and Eicosanoids	811	US/2002 MEDICINE ApoE Alleles Predict Incidence of Alzheimer Disease	802
Malonyl-CoA Is Formed from Acetyl-CoA and Biacetyl	811	Cholesteryl Esters Enter Cells by Receptor-Mediated Endocytosis	802
Fatty Acid Synthesis Proceeds in a Repeating Reaction Sequence	811	HDL Carries Out Reverse Cholesterol Transport	802
The Mitochondrial Fatty Acid Synthase Has Multiple Active Sites	812	Cholesterol Synthesis and Transport Are Regulated at Several Levels	802
Fatty Acid Synthesis Requires the Acetyl and Malonyl Groups	814	Lead to Cardiovascular Disease	802
The Fatty Acid Synthase Reactions Are Regulated in Fatty Tissues	814	Reverse Cholesterol Transport by HDL Counters Plaque Formation and Atherosclerosis	802
Fatty Acid Synthesis Is a Cytosolic Process in Eukaryotes and Takes Place in the Cytoplasm in Plants	816	US/2002 MEDICINE The Lipid Hypothesis and the Development of Statins	802
Acetate Is Shuttled out of Mitochondria as CoA	817	Steroid Hormones Are Formed by Side-Chain Cleavage and Oxidation of Cholesterol	802
	817	Intermediates in Cholesterol Biosynthesis Have Alternative Poles	802

22 Biosynthesis of Amino Acids, Nucleotides, and Related Molecules	859	Degradation of Purines and Pyrimidines Produces Uric Acid and Urea, Respectively	898
22.1 Overview of Nitrogen Metabolism	860	Purine and Pyrimidine Bases Are Recycled by Salvage Pathways	900
The Nitrogen Cycle Maintains a Pool of Biologically Available Nitrogen	860	Excess Uric Acid Causes Gout	900
Nitrogen Is Fixed by Enzymes of the Nitrogenase Complex	861	Many Chemotherapeutic Agents Target Enzymes in Nucleotide Biosynthetic Pathways	901
BOX 22-1 Unusual Lifestyles of the Obscure but Abundant	862		
Ammonia Is Incorporated into Biomolecules through Glutamate and Glutamine	866		
Glutamine Synthetase Is a Primary Regulatory Point in Nitrogen Metabolism	867		
Several Classes of Reactions Play Special Roles in the Biosynthesis of Amino Acids and Nucleotides	868		
22.2 Biosynthesis of Amino Acids	869		
α -Ketoglutarate Gives Rise to Glutamate, Glutamine, Proline, and Arginine	870		
Serine, Glycine, and Cysteine Are Derived from 3-Phosphoglycerate	872		
Three Nonessential and Six Essential Amino Acids Are Synthesized from Oxaloacetate and Pyruvate	873		
Chorismate Is a Key Intermediate in the Synthesis of Tryptophan, Phenylalanine, and Tyrosine	876		
Histidine Biosynthesis Uses Precursors of Purine Biosynthesis	876		
Amino Acid Biosynthesis Is under Allosteric Regulation	877		
22.3 Molecules Derived from Amino Acids	880		
Glycine Is a Precursor of Porphyrins	880		
Heme Degradation Has Multiple Functions	882		
BOX 22-2 MEDICINE On Kings and Vampires	884		
Amino Acids Are Precursors of Creatine and Glutathione	884		
D-Amino Acids Are Found Primarily in Bacteria	885		
Aromatic Amino Acids Are Precursors of Many Plant Substances	886		
Biological Amines Are Products of Amino Acid Decarboxylation	886		
Arginine Is the Precursor for Biological Synthesis of Nitric Oxide	887		
22.4 Biosynthesis and Degradation of Nucleotides	888		
De Novo Purine Nucleotide Synthesis Begins with PRPP	890		
Purine Nucleotide Biosynthesis Is Regulated by Feedback Inhibition	892		
Pyrimidine Nucleotides Are Made from Aspartate, PRPP, and Carbamoyl Phosphate	893		
Pyrimidine Nucleotide Biosynthesis Is Regulated by Feedback Inhibition	893		
Nucleoside Monophosphates Are Converted to Nucleoside Triphosphates	894		
Ribonucleotides Are the Precursors of Deoxyribonucleotides	894		
Thymidylate Is Derived from dCDP and dUMP	898		
		23 Hormonal Regulation and Integration of Mammalian Metabolism	907
		23.1 Hormones: Diverse Structures for Diverse Functions	907
		The Detection and Purification of Hormones Requires a Bioassay	908
		BOX 23-1 MEDICINE How Is a Hormone Discovered?	909
		The Arduous Path to Purified Insulin	909
		Hormones Act through Specific High-Affinity Cellular Receptors	910
		Hormones Are Chemically Diverse	911
		Hormone Release Is Regulated by a "Top-Down" Hierarchy of Neuronal and Hormonal Signals	915
		"Bottom-Up" Hormonal Systems Send Signals Back to the Brain and to Other Tissues	916
		23.2 Tissue-Specific Metabolism: The Division of Labor	918
		The Liver Processes and Distributes Nutrients	919
		Adipose Tissues Store and Supply Fatty Acids	922
		Brown and Beige Adipose Tissues Are Thermogenic	923
		Muscles Use ATP for Mechanical Work	925
		BOX 23-2 Creatine and Creatine Kinase: Invaluable	
		Diagnostic Aids and the Muscle Builder's Friends	926
		The Brain Uses Energy for Transmission of Electrical Impulses	928
		Blood Carries Oxygen, Metabolites, and Hormones	929
		23.3 Hormonal Regulation of Fuel Metabolism	930
		Insulin Counters High Blood Glucose	931
		Pancreatic β Cells Secrete Insulin in Response to Changes in Blood Glucose	932
		Glucagon Counters Low Blood Glucose	934
		During Fasting and Starvation, Metabolism Shifts to Provide Fuel for the Brain	935
		Epinephrine Signals Impending Activity	937
		Cortisol Signals Stress, Including Low Blood Glucose	937
		Diabetes Mellitus Arises from Defects in Insulin Production or Action	938
		23.4 Obesity and the Regulation of Body Mass	939
		Adipose Tissue Has Important Endocrine Functions	939
		Leptin Stimulates Production of Anorexigenic Peptide Hormones	941
		Leptin Triggers a Signaling Cascade That Regulates Gene Expression	941
		The Leptin System May Have Evolved to Regulate the Starvation Response	942

xxiv Contents

Eukaryotic Gene Expression Can Be Regulated by Intercellular and Intracellular Signals	1155
Regulation Can Result from Phosphorylation of Nuclear Transcription Factors	1157
Many Eukaryotic mRNAs Are Subject to Translational Repression	1157
Posttranscriptional Gene Silencing Is Mediated by RNA Interference	1158
RNA-Mediated Regulation of Gene Expression Takes Many Forms in Eukaryotes	1159

Development Is Controlled by Cascades
of Regulatory Proteins
Stem Cells Have Developmental Potential
That Can Be Controlled
BOX 28 Of Fins, Wings, Beaks, and Things

Abbreviated Solutions to Problems

Glossary

Index