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Nota di contenuto	CELL BIOLOGY SECOND EDITION; CONTENTS IN BRIEF; CONTENTS; PREFACE; ACKNOWLEDGMENTS; INSTRUCTOR NOTES; 1 CELLS AND TISSUES; Principles of Microscopy; The Light Microscope; The Electron Microscope; The Scanning Electron Microscope; Only Two Types of Cell; Special Properties of Plant Cells; Viruses; Origin of Eukaryotic Cells; Cell Specialization; Epithelia; Connective Tissue; Nervous Tissue; Muscle; Plants; Summary; Review Questions; Answers to Review Questions; 2 FROM WATER TO DNA: THE CHEMISTRY OF LIFE; The Chemical Bond: Sharing Electrons; Interactions with Water: Solutions Ionic Compounds Will Dissolve Only in Polar Solvents Acids Are Molecules That Give H(+) to Water; Bases Are Molecules That Take H(+)

from Water; Isoelectric Point; A Hydrogen Bond Forms When a Hydrogen Atom Is Shared; Biological Macromolecules; Carbohydrates: Candy and Canes; An Assortment of Sweets; Disaccharides; Out of the Sweet Comes Forth Strength; Modified Sugars; Nucleosides, Phosphate, and Nucleotides; Amino Acids, Polypeptides, and Proteins; Lipids; Hydrolysis; Summary; Further Reading; Review Questions; Answers to Review Questions; 3 MEMBRANES AND ORGANELLES Basic Properties of Cell MembranesStraight Through the Membrane: Diffusion Through the Bilayer; Beyond the Cell Membrane: The Extracellular Matrix; Cell Junctions; Organelles Bounded by Double-Membrane Envelopes; The Nucleus; Mitochondria and Chloroplasts; Organelles Bounded by Single-Membrane Envelopes; Peroxisomes; Endoplasmic Reticulum; Golgi Apparatus; Lysosomes; Summary; Review Questions; Answers to Review Questions; 4 DNA STRUCTURE AND THE GENETIC CODE; Introduction; The Structure of DNA; The DNA Molecule Is a Double Helix; The Two DNA Chains Are Complementary; Different Forms of DNA DNA as the Genetic MaterialPackaging of DNA Molecules into Chromosomes; Eukaryotic Chromosomes and Chromatin Structure; Prokaryotic Chromosomes; Plasmids; Viruses; The Genetic Code; Amino Acid Names Are Abbreviated; The Code Is Degenerate But Unambiguous; Start and Stop Codons and the Reading Frame; The Code Is Nearly Universal; Missense Mutations; Summary; Further Reading; Review Questions; Answers to Review Questions; 5 DNA AS A DATA STORAGE MEDIUM; Introduction; DNA Replication; The DNA Replication Fork; Proteins Open up the DNA Double Helix During Replication; DnaA Protein DnaB and DnaC ProteinsSingle-Strand Binding Proteins; Biochemistry of DNA Replication; DNA Synthesis Requires an RNA Primer; RNA Primers Are Removed; The Self-Correcting DNA Polymerase; DNA Repair; Spontaneous and Chemically Induced Base Changes; Repair Processes; Gene Structure and Organization in Eukaryotes; Introns and Exons-Additional Complexity in Eukaryotic Genes; The Major Classes of Eukaryotic DNA; Gene Nomenclature; Summary; Further Reading; Review Questions; Answers to Review Questions; 6 TRANSCRIPTION AND THE CONTROL OF GENE EXPRESSION; Structure of RNA; RNA Polymerase Gene Notation

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#### Sommario/riassunto

This text tells the story of cells as the unit of life in a colorful and student-friendly manner, taking an ""essentials only"" approach. By using the successful model of previously published Short Courses, this text succeeds in conveying the key points without overburdening readers with secondary information. The authors (all active researchers and educators) skillfully present concepts by illustrating them with clear diagrams and examples from current research. Special boxed sections focus on the importance of cell biology in medicine and industry today. This text is a completely revised, re

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