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Nota di contenuto	Cover -- Title -- Copyright -- End User License Agreement -- Contents -- Foreword -- Preface -- List of Contributors -- Peptidomimetics a Versatile Synthon for Biomaterials: Design Principles and Solutions -- Ankita Sharma1, Naureen Khan1, Vaibhav Shivhare1, Rishabh Ahuja1 and Anita Dutt Konar2,3,* -- 1. INTRODUCTION -- 1.1. What are Peptides? -- 1.2. A Brief Overview of Different Amino Acids -- 2. BASIC PRINCIPLES OF PEPTIDE SYNTHESIS -- 2.1. Need for Protecting Groups -- 2.2. For Peptide System -- 2.3. Problems Encountered in Peptide Reactions -- 3. STRUCTURAL ORGANIZATION IN PROTEINS -- 3.1. Primary (1°) Structure -- 3.2. Secondary (2°) Structure -- 3.3. Tertiary (3°) Structure -- 3.4. Quaternary (4°) Structure -- 4. TOOLS FOR STABILIZING SECONDARY STRUCTURAL ORGANIZATION OF PROTEINS: INTRODUCTION TO TORSION ANGLES AND RAMACHANDRAN PLOT -- 5. DIFFERENT FOLDING PATTERNS/SECONDARY STRUCTURES OF PROTEINS -- 5.1. Helices -- 5.1.1. -helix -- 5.1.2. 310-helix -- 5.1.3. -helix -- 5.2. -sheets -- 5.3. Reverse Turns

Sommario/riassunto

Naturally-derived biomaterials invite immense interest from diverse segments of science and engineering. Recent decades have witnessed a leap in knowledge and efforts in ongoing research with biomaterials as synthons, yet biomaterial research never fails to create surprises. This book summarizes modern knowledge of bioderived materials for beginners in research and advanced readers in materials science. The book lays the foundations of understanding the design and development of mimetic peptides and enzyme mimetic bioinorganic catalysts, including the toolsets used in the process. Next, the book demonstrates different approaches for obtaining task-specific designer hydrogels. Additional topics covered in the book are tissue engineering and regenerative medicine. From this point, the book presents information on complex biomaterials systems: bacterial cellulose, cell membrane architecture for nanocomposite material design, and whole cellular microorganisms. Chapters provide applied knowledge with information on the strategies used to design novel biomaterials for applications such as drug delivery, therapy and controlled chemical synthesis. In summary, this book brings together a wealth of information on bioderived materials with versatile applications, derived from different sources, such as plant derivatives and microorganisms (in part or whole as synthons), benefitting readers from multidisciplinary backgrounds. Readership Graduate students in materials science and biotechnology, industry professionals and early career researchers.