

1. Record Nr.	UNINA9910830736603321
Autore	Tsai C. Stan
Titolo	Biomacromolecules [[electronic resource] ] : introduction to structure, function and informatics // C. Stan Tsai
Pubbl/distr/stampa	Hoboken, N.J., : Wiley-Liss, c2007
ISBN	1-280-72225-8 9786610722259 0-470-08012-4 0-470-08011-6
Descrizione fisica	1 online resource (770 p.)
Disciplina	572 572.8 572/.33
Soggetti	Macromolecules Biomolecules
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	BIOMACROMOLECULES; CONTENTS; Preface; Abbreviations in Repetitive Use; CHAPTER 1 INTRODUCTION; 1.1 Prelude; 1.2 Covalent Bonds; 1.3 Noncovalent Interactions; 1.3.1 Electrostatic Interaction; 1.3.2 Van der Waals Interaction; 1.3.3 Hydrogen Bond; 1.3.4 Hydrophobic Interaction; 1.3.5 Steric Repulsion; 1.4 Isomerism: Configuration versus Conformation; 1.5 Trilogy; 1.6 References; CHAPTER 2 MONOMER CONSTITUENTS OF BIOMACROMOLECULES; 2.1 Nucleotides: Constituents of Nucleic Acids; 2.2 -Amino Acids: Constituents of Proteins; 2.3 Monosaccharides: Constituents of Glycans; 2.4 Addendum; 2.5 References CHAPTER 3 PURIFICATION AND CHARACTERIZATION 3.1 Purification: Overview; 3.2 Purification: Chromatography; 3.3 Purification: Electrophoresis; 3.4 Characterization: General; 3.4.1 Purity; 3.4.2 Molecular Weight; 3.4.3 Molecular Dimension; 3.5 Characterization: Specific; 3.5.1 Melting Temperature of DNA; 3.5.2 Buoyant Density of Biomacromolecules; 3.5.3 Isoelectric pH of Proteins; 3.5.4 Removal of Glycosides from Glycoproteins; 3.6 References; CHAPTER 4

BIOMACROMOLECULAR STRUCTURE: NUCLEIC ACIDS; 4.1 Structural Organization; 4.1.1 Structural Hierarchy  
4.1.2 Representation of Structures of Nucleic Acids  
4.2 Sequence Analysis of Nucleic Acids; 4.2.1 General; 4.2.2 Chemical Cleavage Method; 4.2.3 Enzymatic Chain Termination/Dideoxy Method; 4.2.4 Mass Spectrometric Analysis; 4.2.5 Automated DNA Sequencing Technology; 4.3 Secondary Structure and Structure Polymorphism of DNA; 4.3.1 Key Structural Features of Nucleic Acids; 4.3.2 DNA Polymorphism; 4.3.3 Alternative Structures of DNA; 4.4 Supercoiling and Tertiary Structure of DNA; 4.4.1 DNA Topoisomers; 4.4.2 Superhelical Density and Energetics of Supercoiling.  
4.5 Classification and Structures of RNA  
4.5.1 Structures of RNA; 4.5.2 Transfer RNA; 4.5.3 Ribosomal RNA; 4.5.4 Messenger RNA; 4.5.5 Other Classes of RNA; 4.6 RNA Folds and Structure Motifs; 4.6.1 RNA Folds; 4.6.2 Structure Motifs of RNA; 4.7 Energetics of Nucleic Acid Structure; 4.8 Nucleic Acid Application; 4.9 References; CHAPTER 5  
BIOMACROMOLECULAR STRUCTURE: PROTEINS; 5.1 Architecture of Protein Molecules; 5.1.1 Introduction; 5.1.2 Representation of Protein Structures; 5.2 Primary Structure of Proteins: Chemical and Enzymatic Sequence Analysis; 5.2.1 Amino Acid Composition  
5.2.2 Peptide Cleavage, Separation and Analysis  
5.2.3 Terminal and Sequence Determination; 5.2.4 Peptide Ladder Sequencing; 5.3 Primary Structure of Proteins: Sequence Analysis by Tandem Mass Spectrometry; 5.3.1 An Application of Mass Spectrometry (MS) in Protein Chemistry; 5.3.2 Application of Tandem Mass Spectrometry (MS-MS) in Protein Sequence Analysis; 5.4 Conformational Map; 5.5 Secondary Structures and Motifs of Proteins; 5.5.1  $\alpha$ -Helical Structure; 5.5.2  $\beta$ -Sheet Structure; 5.5.3 Nonrepetitive Structure: Connection (Loop) and Turn; 5.5.4 Notes to Secondary Structures of Globular Proteins  
5.5.5 Motifs: Supersecondary Structures

---

### Sommario/riassunto

This book provides an integrated treatment of the structure and function of nucleic acids, proteins, and glycans, including thorough coverage of relevant computational biochemistry. The text begins with an introduction to the biomacromolecules, followed by discussion of methods of isolation and purification, physicochemical and biochemical properties, and structural characteristics. The next section of the book deals with sequence analysis, analysis of conformation using spectroscopy, chemical synthesis, and computational approaches. The following chapters discuss biomolecular interactions, e

---