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	Reconstituted Quinoproteins3.2.5 Reconstituted Electrically Contacted Hemoproteins; 3.2.6 Reconstituted de novo Hemoproteins on Electrodes; 3.3 Electrical Contacting of Redox Proteins by Cross-linking of Cofactor-Enzyme Affinity Complexes on Surfaces; 3.3.1 Integrated NAD(P)(+)-Dependent Enzyme-Electrodes; 3.3.2 Integrated Electrically Contacted Hemoprotein Electrodes; 3.4 Reconstituted Enzyme- Electrodes for Biofuel Cell Design; 3.5 Conclusions and Perspectives; References 4 Application of Electrically Contacted Enzymes for Biosensors4.1 Introduction; 4.2 Biosensors - Precursors of Bioelectronics; 4.3 Via Miniaturization to Sensor Arrays - The Biochip; 4.4 The Route to Electrically Contacted Enzymes in Biosensors; 4.5 Routine Applications of Enzyme Electrodes; 4.6 Research Applications of Directly Contacted Proteins; 4.6.1 Protein Electrodes for the Detection of Oxygen-derived Radicals; 4.6.2 Cytochrome P 450 - An Enzyme Family Capable of Direct Electrical Communication; 4.7 Conclusions; References; 5 Electrochemical DNA Sensors; 5.1 Introduction 5.1.1 Indicator Electrodes5.1.2 Electrochemical Methods; 5.2 Natural Electroactivity and Labeling of Nucleic Acids; 5.2.4 Signal Amplification; 5.3 Sensors for DNA and RNA Hybridization; 5.3.1 DNA Hybridization; 5.3.2 Electrochemical Detection in DNA Sensors; 5.3.3 Single-surface Techniques; 5.3.4 Double-surface Techniques; 5.3.5 Concluding Remarks to DNA Hybridization Sensors; 5.4 Sensors for DNA Damage; 5.4.1 DNA Damage
Sommario/riassunto	Medicine, chemistry, physics and engineering stand poised to benefit within the next few years from the ingenuity of complex biological structures invented and perfected by nature over millions of years. This book provides both researchers and engineers as well as students of all the natural sciences a vivid insight into the world of bioelectronics and nature's own nanotechnological treasure chamber.