1. Record Nr. UNINA9910132336903321

Titolo	Biosensors nanotechnology / / edited by Ashutosh Tiwari and Anthony P.F. Turner
Pubbl/distr/stampa	Hoboken, New Jersey : , : Scrivener Publishing : , : Wiley, , 2014 ©2014
ISBN	1-118-77382-9 1-118-77393-4
Descrizione fisica	1 online resource (552 p.)
Collana	Advanced Material Series
Disciplina	610.28/4
Soggetti	Nanotechnology
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 at the end of each chapters and index.
Nota di contenuto	Cover; Title Page; Copyright Page; Contents; Preface; Part 1: New Materials and Methods; 1 ZnO and Graphene Microelectrode Applications in Biosensing; 1.1 Biosensors Based on Nanostructured Materials; 1.2 Graphene Nanomaterials Used in Electrochemical Biosensor Fabrication; 1.3 ZnO Nanostructures Used in the Fabrication of Electrochemical Biosensors; 1.4 Miniaturized Graphene and ZnO Nanostructured Electrochemical Biosensors for Food and Clinical Applications; 1.4.1 Amperometric Biosensors; 1.4.2 Potentiometric Sensors; 1.5 Conclusions and Future Prospects; Acknowledgements; References 2 Assembly of Polymers/Metal Nanoparticles and Their Applications as Medical Devices2.1 Introduction; 2.2 Platinum Nanoparticles; 2.3 Gold Nanoparticles; 2.4 Silver Nanoparticles; 2.5 Assembly of Polymers/Silver Nanoparticles; 2.6 Conclusion; Acknowledgements; References; 3 Gold Nanoparticle-Based Electrochemical Biosensors for Medical Applications; 3.1 Introduction; 3.1.1 Electrochemical Biosensors; 3.2 Gold Nanoparticles; 3.2.1 Preparation of AuNPs; 3.2.2 AuNP Modified Electrodes; 3.2.3 AuNP-Based Electrochemical Biosensors for Medical Applications; 3.3 Conclusion; References 4 Impedimetric DNA Biosensors Based on Nanomaterials4.1 Introduction; 4.1.1 DNA Biosensors (Genosensors); 4.1.2

Electrochemical DNA Biosensors; 4.2 Electrochemical Impedance Spectroscopy for Genosensing; 4.2.1 Theoretical Background; 4.2.2 Impedimetric DNA Biosensors; 4.3 Nanostructured Carbon Used in Impedimetric Genosensors; 4.3.1 Carbon Nanotubes and Nanostructured Diamond; 4.3.2 Graphene-Based Platforms; 4.4 Nanostructured Gold Used in Impedimetric Genosensors; 4.4.1 Gold Nanoelectrodes; 4.4.2 Gold Nanoparticles Used as Labels; 4.5 Quantum Dots for Impedimetric Genosensing
4.6 Impedimetric Genosensors for Point-of-Care Diagnosis4.7 Conclusions (Past, Present and Future Perspectives); Acknowledgements; References; 5 Graphene: Insights of its Application in Electrochemical Biosensors for Environmental Monitoring; 5.1 Introduction; 5.1.1 Graphene (GR); 5.1.2 Electrochemical Sensors; 5.1.3 Graphene-based (bio)sensors: Generalities; 5.2 Environmental Applications of Graphene-based Biosensors; 5.2.1 Heavy Metals; 5.2.2 Phenols; 5.2.3 Pesticides; 5.2.4 Other Pollutants; 5.2.4.1 Hydrogen Peroxide; 5.2.4.2 Microorganisms; 5.3 Conclusions and Perspectives; References
6 Functional Nanomaterials for Multifarious Nanomedicine6.1 Introduction; 6.2 Nanoparticle Coatings; 6.3 Cyclic Peptides; 6.4 Dendrimers; 6.5 Fullerenes/Carbon Nanotubes/Graphene; 6.6 Functional Drug Carriers; 6.7 MRI Scanning Nanoparticles; 6.8 Nanoemulsions; 6.9 Nanofibers; 6.10 Nanoshells; 6.11 Quantum Dots; 6.12 Nanoimaging; 6.13 Inorganic Nanoparticles; 6.14 Conclusions; Acknowledgement; References; Part 2: Principals and Prospective
7 Computational Nanochemistry Study of the Molecular Structure, Spectra and Chemical Reactivity Properties of the BFPF Green Fluorescent Protein Chromophore

Sommario/riassunto

This book provides detailed reviews of a range of nanostructures used in the construction of biosensors as well as the applications of these biosensor nanotechnologies in the biological, chemical, and environmental monitoring fields Biological sensing is a fundamental tool for understanding living systems, but also finds practical application in medicine, drug discovery, process control, food safety, environmental monitoring, defense, and personal security. Moreover, a deeper understanding of the bio/electronic interface leads us towards new horizons in areas such as bionics, power generatio