

1. Record Nr.	UNINA9910780891203321
Titolo	Annual review of nano research . Volume 3 [[electronic resource] /] / editors, Guozhong Cao, Qifeng Zhang, C. Jeffrey Brinker
Pubbl/distr/stampa	Singapore, : World Scientific, 2010
ISBN	1-282-76119-6 9786612761195 981-4280-52-6
Descrizione fisica	1 online resource (576 p.)
Collana	Annual review of nano research ; ; v. 3
Altri autori (Persone)	CaoGuozhong ZhangQifeng BrinkerC. Jeffrey
Disciplina	620.5072
Soggetti	Nanoscience 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.
Nota di contenuto	TABLE OF CONTENTS; Preface; Contributing Authors; Chapter 1. Nanoscale Biosensors and Biochips Wayne R. Leifert, Richard V. Glatz, Kelly Bailey, Tamara Cooper, Marta Bally, Brigitte Maria Stadler, Erik Reimhult and Joseph G. Shapter; 1. General Introduction; 2. Biological Detectors Used in Biosensing and Biochips; 2.1. G-Protein Coupled Receptor Biosensors (GPCRs); 2.1.1. Importance of GPCRs; 2.1.2. Surface Capture of GPCRs; 2.1.3. Ligand-Binding at GPCRs; 2.1.4. Detecting GPCR Conformational Changes; 2.1.5. GTP Binding at G-Protein Subunits; 2.1.6. G-Protein Dissociation 2.1.7. GPCRs as Biological Detectors of Volatiles 2.1.8. The Future of GPCR Biosensors; 2.2. Pore-Forming Proteins; 2.2.1. Ion-Channel Switch; 2.2.2. Stochastic Sensing; 2.3. Cell- and Viral-Based Sensing; 2.3.1. Bacterial Biosensors; 2.3.2. Fungal and Algae Cell Biosensors; 2.3.3. Mammalian Cell Biosensors; 2.3.4. Cell Immobilization and Arrays; 2.3.5. Virus-Containing Biosensors; 3. Lipid Supports for Biosensor and Biochip Fabrication; 3.1. Why Functionalize Biosensors with Lipid Membranes?; 3.2. Methods to Assemble Supported Lipid Membranes; 3.3. Supported Lipid Membrane Platforms

3.4. Advanced Sensors Functionalized with Lipid Membranes
3.5. Future Perspectives; 4. Nanopatterning for Biosensing and Biochip Fabrication;
4.1. Parallel Nanopatterning Methods; 4.1.1. Photolithography; 4.1.2. Soft Lithography; 4.1.3. Nanoimprint Lithography; 4.1.4. Nanosphere Lithography; 4.2. Serial Nanopatterning Methods; 5. Sensing Substrates: A Closer Look at Nanotubes; 5.1. Carbon Nanotube Electrodes for Communicating with Redox Proteins; 5.2. Aligned Carbon Nanotube Electrodes for Direct Electron Transfer to Enzymes
6. Reporter Technologies: Nano-Sized Labels for Biosensing Applications
6.1. Biosensors Utilizing Optical Reporting; 6.1.1. Metallic Nanoparticle Labels; 6.1.2. Quantum Dot Labels; 6.1.3. Liposomes as Optical Labels; 6.2. Biosensors Utilising Electrochemical Reporting; 6.2.1. Metallic and Semiconductor Nanoparticles as Electrochemical Reporters; 6.2.2. Liposomes as Electrochemical Reporters; 7. Biosensing Applications; 7.1. Medical; 7.2. Food and Wine; 7.2. Food and Wine; 7.3. Explosives and Biowarfare; 7.4. Environmental; 8. Conclusion; References
Chapter 2. Surface Modifications and Applications of Magnetic and Selective Nonmagnetic Nanoparticles Rui Shen and Hong Yang
1. Introduction; 2. General Approaches to Surface Modification of Nanostructures; 2.1. Adsorption and Self-Assembly; 2.1.1. Modification through Adsorption of Organic Molecules; 2.1.2. Modification through Self Assembly and Layer-by-Layer Deposition; 2.2. Surface Modification Based on Organic Reactions; 2.3. Surface Modification Based on Polymerization; 2.4. Surface Modification with Inorganic Layers Based on Sol-Gel Approaches; 2.4.1. Sol-Gel Methods
2.4.2. Stober Method

Sommario/riassunto

Annual Review of Nano Research, Volume 3 focuses mainly on nanofabrication, nanomaterials and nanostructures, and energy application of nanomaterials. All the review chapters are contributed by well-published scientists and bring the most recent advancement in selected topics to the readers. This review volume will serve dual purposes: either as an excellent introduction to scientists whose expertise lie in different fields but who are interested in learning about nanotechnology, or as a quick reference for experts active in the field of nanoscience and nanotechnology. *Sample Chapt*
