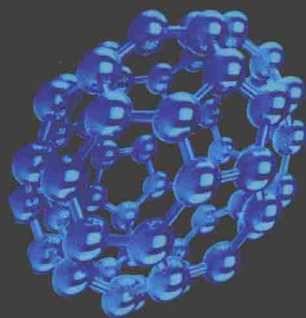
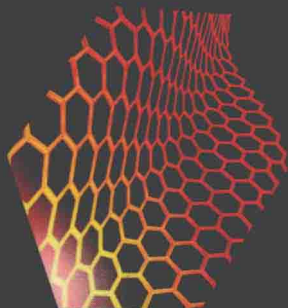
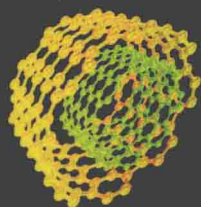
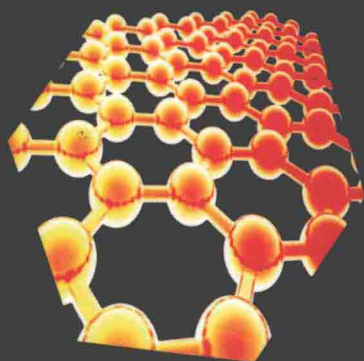
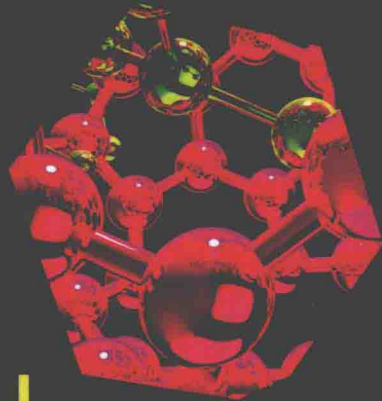


# Biological and Pharmaceutical Applications of Nanomaterials



Edited by

**Polina Prokopovich**



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# **Biological and Pharmaceutical Applications of Nanomaterials**



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# Preface

This book represents recent developments and research activities in the field of nanomaterials with particular focus on biological and pharmaceutical applications.

The book is divided into four sections, each comprising chapters with a common theme. Section I contains seven chapters dealing with nanomaterials for drug delivery. Topics covered in Section I include stimuli-responsive nanostructured silica matrixes, gold nanoparticles, and liposomes for targeting drug delivery applications and dental applications. In addition, material on nanocarriers and nanoparticles as cancer therapeutics and as peptide therapeutics are covered in this section. Section II consists of two chapters dedicated to antimicrobial nanomaterials. Section II covers topics on the influence of surface characteristics on microbial adhesion and summarizes recent advances in antimicrobial nanostructured polymers for medical applications. Section III contains five chapters dealing with nanomaterials in biosensors, and Section IV consists of a single chapter on safety of nanomaterials. Section III covers recent advances in nanodiagnostic techniques for infectious agents, chromogenic biosensors for pathogen detection and electrochemical biosensors for detecting DNA damage and genotoxicity, and molecular imaging with quantum dots including surface modifications by polymers for biosensing applications.

The authors who contributed to this book are very experienced researchers with years of experience in industry and academia. All of the book contributors are experts in their field with considerable experience in researching, developing, and applying the proposed techniques. We sincerely hope that the information in this book will be a valuable resource for clinicians, microbiologists, cell biologists, pharmacists, chemists, and material scientists. This fascinating and comprehensive book will reinforce the multidisciplinary nature of the nanomaterial field.

**Polina Prokopovich**  
*Cardiff University, United Kingdom*



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# Editor

**Polina Prokopovich, BSc, MSc, PhD, CEng, CBiol**, is a lecturer in the School of Pharmacy and Pharmaceutical Sciences of Cardiff University, United Kingdom.

Dr. Prokopovich holds an honorary appointment as a visiting academic in the Department of Biological Engineering of the Massachusetts Institute of Technology (USA), and she is a visiting professor at Kazakh National Technical University and a visiting lecturer at the University of Ljubljana (Slovenia).

She has published a total of 72 refereed papers, which are composed of 35 original research journal papers, 4 invited reviews, and 33 conference papers; 7 book chapters; and 1 edited book. She has given numerous invited talks at international professional meetings/conferences. Dr. Prokopovich serves on a number of editorial boards, grant panels, and scientific international committees.





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# Contributors

**Annia Alba-Menéndez**

Branch of Parasitology  
Pedro Kourí Institute of Tropical  
Medicine  
Havana, Cuba

**Shylaja Arulkumar**

Centre for Stem Cell Research  
Christian Medical College Campus  
Vellore, India

**Yuxing Bai**

Department of Orthodontics  
School of Stomatology  
Capital Medical University  
Beijing, China

**Bhubaneswari Bal**

Centre of Biotechnology  
Bioengineering Laboratory  
Siksha O Anusandhan University  
Bhubaneswar, India

**Kacoli Banerjee**

School of Medical Science  
and Technology  
Indian Institute of Technology  
Kharagpur, India

**Shubhadeep Banerjee**

School of Medical Science  
and Technology  
Indian Institute of Technology  
Kharagpur, India

**Klemen Bohinc**

Faculty of Health Sciences  
University of Ljubljana  
Ljubljana, Slovenia

**Weibo Cai**

Materials Science Program  
Department of Radiology  
Department of Medical Physics  
University of Wisconsin, Madison  
and  
University of Wisconsin Carbone  
Cancer Center  
Madison, Wisconsin

**Nadia Canilho**

Université de Lorraine  
SRSMC  
Vandoeuvre-lès-Nancy, France

**Xin Cao**

Chinese Academy of Sciences Key  
Laboratory for Biological Effects  
of Nanomaterials and Nanosafety  
National Center for Nanoscience  
and Technology  
and  
School of Material Science  
and Engineering  
Beihang University  
Beijing, China

**Lei Cheng**

Biomaterials and Tissue Engineering  
Division

Department of Endodontics,  
Prosthodontics, and Operative  
Dentistry

University of Maryland Dental School  
Baltimore, Maryland

and

State Key Laboratory of Oral Diseases  
West China College of Stomatology  
Sichuan University  
Chengdu, China

**Marcella Chiari**

Consiglio Nazionale delle Ricerche  
Istituto di Chimica del Riconoscimento  
Molecolare  
Milan, Italy

**Marina Cretich**

Consiglio Nazionale delle Ricerche  
Istituto di Chimica del Riconoscimento  
Molecolare  
Milan, Italy

**Alok P. Das**

Centre of Biotechnology  
Bioengineering Laboratory  
Siksha O Anusandhan University  
Bhubaneswar, India

**Goran Dražić**

National Institute of Chemistry  
Ljubljana, Slovenia

**Nelson Duran**

NanoBioss  
IQ-UNICAMP  
and  
Biological Chemistry Laboratory  
Instituto de Química  
Universidade Estadual de Campinas  
Campinas, São Paulo, Brazil

**Ali A. Ensafi**

Department of Chemistry  
Isfahan University of Technology  
Isfahan, Iran

**Chiara Finetti**

Consiglio Nazionale delle Ricerche  
Istituto di Chimica del Riconoscimento  
Molecolare  
Milan, Italy

**Rok Fink**

Faculty of Health Sciences  
University of Ljubljana  
Ljubljana, Slovenia

**Octavio Luiz Franco**

Pos-Graduação em Ciências Genômicas  
e Biotecnologia  
Universidade Católica de Brasília  
Brasília, Brazil

**Paola Gagni**

Consiglio Nazionale delle Ricerche  
Istituto di Chimica del Riconoscimento  
Molecolare  
Milan, Italy

**Swapnil Gaikwad**

Nanobiotechnology Laboratory  
Department of Biotechnology  
Sant Gadge Baba Amravati University  
Amravati, Maharashtra, India

**Shreya Goel**

Materials Science Program  
University of Wisconsin, Madison  
Madison, Wisconsin

**María Isabel González-Sánchez**

Department of Physical Chemistry  
School of Industrial Engineering  
Castilla-La Mancha University  
Albacete, Spain

**Indarchand Gupta**

Nanobiotechnology Laboratory  
Department of Biotechnology  
Sant Gadge Baba Amravati University  
Amravati, Maharashtra, India

and

Department of Biotechnology  
Institute of Science  
Aurangabad, Maharashtra, India

**Esmail Heydari-Bafrooei**

Department of Chemistry  
Faculty of Science  
Vali-e-Asr University of Rafsanjan  
Rafsanjan, Iran

**Hsin-Yun Hsu**

Department of Applied Chemistry  
National Chiao-Tung University  
and  
Institute of Molecular Science  
National Chiao-Tung University  
Hsinchu, Taiwan

**Zhongbo Hu**

University of Chinese Academy  
of Sciences  
Beijing, China

**Xin-Chun Huang**

Department of Applied Chemistry  
National Chiao-Tung University  
Hsinchu, Taiwan

**Shuaidong Huo**

Chinese Academy of Sciences Key  
Laboratory for Biological Effects  
of Nanomaterials and Nanosafety  
National Center for Nanoscience  
and Technology  
and  
University of Chinese Academy  
of Sciences  
Beijing, China

**Avinash Ingle**

Nanobiotechnology Laboratory  
Department of Biotechnology  
Sant Gadge Baba Amravati University  
Amravati, Maharashtra, India

**Mojca Jevšnik**

Faculty of Health Sciences  
University of Ljubljana  
Ljubljana, Slovenia

**Sanghoon Kim**

Université de Lorraine  
SRSMC  
Vandoeuvre-lès-Nancy, France

**Kateryna Kon**

Department of Microbiology, Virology,  
and Immunology  
Kharkiv National Medical University  
Kharkiv, Ukraine

**Xing-Jie Liang**

Chinese Academy of Sciences Key  
Laboratory for Biological Effects  
of Nanomaterials and Nanosafety  
National Center for Nanoscience  
and Technology  
Beijing, China

**Carlos López-Abarrategui**

Center for Protein Studies  
Faculty of Biology  
Havana University  
Havana, Cuba

**Yun-Ling Luo**

Department of Applied Chemistry  
National Chiao-Tung University  
Hsinchu, Taiwan

**Pragyan Smita Mahapatra**

Centre of Biotechnology  
Bioengineering Laboratory  
Siksha O Anusandhan University  
Bhubaneswar, India

**Mahitosh Mandal**

School of Medical Science  
and Technology  
Indian Institute of Technology  
Kharagpur, India

**Mary Anne S. Melo**

Biomaterials and Tissue Engineering  
Division  
Department of Endodontics,  
Prosthodontics, and Operative  
Dentistry  
University of Maryland Dental School  
Baltimore, Maryland

**Anselmo J. Otero-González**

Center for Protein Studies  
Faculty of Biology  
Havana University  
Havana, Cuba

**Andreea Pasc**

Université de Lorraine  
SRSMC  
Vandoeuvre-lès-Nancy, France

**Stefano Perni**

School of Pharmacy and  
Pharmaceutical Sciences  
Cardiff University  
Cardiff, Wales, United Kingdom

and

Department of Biological Engineering  
Massachusetts Institute of Technology  
Cambridge, Massachusetts

**Polina Prokopovich**

School of Pharmacy and  
Pharmaceutical Sciences  
Cardiff University  
Cardiff, Wales, United Kingdom

and

Department of Biological Engineering  
Massachusetts Institute of Technology  
Cambridge, Massachusetts

**Mahendra Rai**

Nanobiotechnology Laboratory  
Department of Biotechnology  
Sant Gadge Baba Amravati University  
Amravati, Maharashtra, India

**Murugan Ramalingam**

Centre for Stem Cell Research  
Christian Medical College Campus  
Vellore, India

and

WPI-Advanced Institute for Materials  
Research  
Tohoku University  
Sendai, Japan

**Deepti Rana**

Centre for Stem Cell Research  
Christian Medical College Campus  
Vellore, India

**Peter Raspor**

Faculty of Health Sciences  
University of Primorska  
Izola, Slovenia

**Edilso Reguera**

CICATA-IPN  
Unidad Legaria  
México City, México

**Lidiany K.A. Rodrigues**

Postgraduate Program in Dentistry  
Faculty of Pharmacy, Dentistry,  
and Nursing  
Federal University of Ceará  
Fortaleza, Brazil

**Laura Sola**

Consiglio Nazionale delle Ricerche  
Istituto di Chimica del Riconoscimento  
Molecolare  
Milan, Italy

**Muhammad Ali Syed**

Department of Microbiology  
University of Haripur  
Haripur, Khyber Pakhtunkhwa,  
Pakistan

**Michael D. Weir**

Biomaterials and Tissue Engineering  
Division  
Department of Endodontics,  
Prosthodontics, and Operative  
Dentistry  
University of Maryland Dental School  
Baltimore, Maryland

**Hockin H.K. Xu**

Biomaterials and Tissue Engineering  
Division  
Department of Endodontics,  
Prosthodontics, and Operative  
Dentistry  
University of Maryland Dental School  
and  
Center for Stem Cell Biology  
and Regenerative Medicine  
University of Maryland School  
of Medicine  
and  
University of Maryland Marlene and  
Stewart Greenebaum Cancer Center  
University of Maryland School  
of Medicine  
Baltimore, Maryland

**Sarah P. Yang**

Wisconsin Department of Natural  
Resources  
Madison, Wisconsin

**Ke Zhang**

Biomaterials and Tissue Engineering  
Division  
Department of Endodontics,  
Prosthodontics, and Operative  
Dentistry  
University of Maryland Dental School  
Baltimore, Maryland

and

Department of Orthodontics  
School of Stomatology  
Capital Medical University  
Beijing, China

**Xuedong Zhou**

State Key Laboratory of Oral Diseases  
West China College of Stomatology  
Sichuan University  
Chengdu, China



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