

# Contents

## Part I Novel Nanocarrier Design and Processing

<b>Proprietary Nanofiber Technologies and Scale-Up</b> . . . . .	3
Stanislav Petrík	
<b>Magnetically Responsive (Nano) Biocomposites</b> . . . . .	17
Ivo Šafařík, Kristýna Pospíšková, Kateřina Horská, Zdeňka Maděrová and Mirka Šafaříková	
<b>Zwitterionic Nanocarriers for Gene Delivery</b> . . . . .	35
Yu-Ju Shih, Ching-Wei Tsai, Lemmuel L. Tayo and Yung Chang	
<b>Stimuli-Responsive Polymeric Nanocarriers as Promising Drug and Gene Delivery Systems</b> . . . . .	55
Gurusamy Saravanakumar and Won Jong Kim	
<b>Photo-Responsive Polymeric Nanocarriers for On-Demand Drug Delivery</b> . . . . .	93
Jian Ji and Qiao Jin	

## Part II Nanocarrier Characterization and Function

<b>Uptake and Intracellular Trafficking of Nanocarriers</b> . . . . .	117
Helene Andersen, Ladan Parhamifar and S. Moein Moghimi	
<b>Mucus as Physiological Barrier to Intracellular Delivery</b> . . . . .	139
Eleonore Fröhlich and Eva Roblegg	
<b>Investigation of Nanoparticles in Biological Objects by Electron Microscopy Techniques</b> . . . . .	165
Gabriela Kratošová, Kateřina Dědková, Ivo Vávra and Fedor Čiampor	

<b>Gold Nanoparticles for High Resolution Imaging in Modern Immunocytochemistry . . . . .</b>	<b>189</b>
Adam Schröfel, Dušan Cmarko, Eva Bártoová and Ivan Raška	
<b>Design of Functional Polymers for Intracellular Nucleic Acids Delivery . . . . .</b>	<b>207</b>
Hiroyasu Takemoto and Nobuhiro Nishiyama	
<b>Membrane-Domain-Selective Drug Targeting Based on Lipid Modification . . . . .</b>	<b>219</b>
Takeshi Mori and Yoshiki Katayama	
<b>Multifunctional Protein-Based Nanoparticles for Cancer Theranosis . . . . .</b>	<b>231</b>
Luca Vannucci, Elisabetta Falvo and Pierpaolo Ceci	
<b>Cytocompatible Phospholipid Polymers for Non-invasive Nanodevices . . . . .</b>	<b>255</b>
Tomohiro Konno	
<b>Intracellular Protein Delivery Using Self-Assembled Amphiphilic Polysaccharide Nanogels . . . . .</b>	<b>265</b>
Asako Shimoda, Shin-ichi Sawada and Kazunari Akiyoshi	
 <b>Part III Simulation for Delivery and Function</b>	
<b>Molecular Dynamics Simulations of Polyplexes and Lipoplexes Employed in Gene Delivery . . . . .</b>	<b>277</b>
Deniz Meneksedag-Erol, Chongbo Sun, Tian Tang and Hasan Uludag	
<b>Computational Studies of Highly PEG-ylated Sterically Stabilized Micelles: Self-Assembly and Drug Solubilization . . . . .</b>	<b>313</b>
Petr Král and Lela Vuković	
<b>Toward Intracellular Delivery and Drug Discovery: Stochastic Logic Networks as Efficient Computational Models for Gene Regulatory Networks . . . . .</b>	<b>327</b>
Peican Zhu, Jinghang Liang and Jie Han	

**Part IV Nanocarriers for Drug Discovery and Treatment**

<b>Nanodiamonds as Intracellular Probes for Imaging in Biology and Medicine . . . . .</b>	<b>363</b>
Jitka Slegerova, Ivan Rehor, Jan Havlik, Helena Raabova, Eva Muchova and Petr Cigler	
<b>Intracellular Delivery of RNA via RNA-Binding Proteins or Peptides . . . . .</b>	<b>403</b>
Kazunori Watanabe and Takashi Ohtsuki	
<b>Hyaluronic Acid Based Nanofibers for Wound Dressing and Drug Delivery Carriers . . . . .</b>	<b>417</b>
Jana Růžicková, Vladimír Velebný, Jindřich Novák, Katarzyna Szuszkiewicz, Kateřina Knotková, Marcela Foglarová and Marek Pokorný	
<b>Potential of siRNA Therapy in Chronic Myeloid Leukemia. . . . .</b>	<b>435</b>
Juliana Valencia-Serna, Breanne Landry, Xiaoyan Jiang and Hasan Uludag	
<b>Index . . . . .</b>	<b>475</b>

Intracellular Delivery II

Fundamentals and Applications

Prokop, A.; Iwasaki, Y.; Harada, A. (Eds.)

2014, XIX, 479 p. 168 illus., 110 illus. in color.,

Hardcover

ISBN: 978-94-017-8895-3