

NUCLEIC ACID NANOTHERANOSTICS

Edited by Marco Filice and Jesús Ruiz-Cabello

Nucleic Acid Nanotheranostics: Biomedical Applications offers a comprehensive overview of improvements and new trends in the fabrication of nanostructures as theranostic multifunctional carriers in gene therapy. With a strong focus on medical applications, comprising diagnosis, therapy, imaging, and combinations thereof, the book also examines gene therapy in the cells or tissues of an individual patient to treat a wide variety of diseases, such as oncology, as well as cardiovascular and respiratory diseases. Sections also cover the biomedical and diagnostic applications of nucleic acids, biologic and synthetic advanced nanostructures for specific nucleic acid delivery, and important considerations in nanomedicine.

Key Features

- Provides a unique source of knowledge (theoretical as well as practical) on nanotheranostic materials for gene therapy at all levels and related scientific areas.
- Covers the pros and cons of nucleic acid delivery (viral- and nanomaterial-based in terms of biosafety, carrier selection, synthesis, and bioimaging).
- Presents an up-to-date analysis of nanoformulations approved for clinical use and those still undergoing preclinical evaluation.

This book is a valuable guide for materials scientists, biochemists, biomedical engineers, pharmaceutical chemists, physicians, academic researchers, and industry professionals who work with nanomaterials for healthcare applications.

Dr. Marco Filice is an associate researcher at the Dept. of Chemistry in Pharmaceutical Sciences, Faculty of Pharmacy, Complutense University of Madrid (UCM, Spain); head of the Nanobiotechnology for Life Sciences Group (UCM); and researcher at the Spanish Biomedical Network of Research in Respiratory Diseases (CIBERES), part of the National Institute of Health Carlos III. His research work is mainly focused on the multidisciplinary-based design and creation of nanosized-material-biomacromolecule artificial hybrids showing highly improved or de novo biological properties. Prepared artificial nanobiohybrids have shown a wide application scope, mainly in advanced synthesis and catalysis, as well as in the development of novel ultrasensitive molecular diagnostic and nanomedicines, especially the theranosis of cardiovascular, pulmonary, cancer, and immune-based diseases.

Prof. Jesús Ruiz-Cabello is a full professor at the Faculty of Pharmacy, Complutense University of Madrid (UCM, Spain); Ikerbasque Research Professor and Head of the Molecular and Functional Biomarkers group at the CIC BiomaGUNE in San Sebastian/Donostia; and Scientific Assistant Director of the Spanish Biomedical Network of Research in Respiratory Diseases (CIBERES), part of the National Institute of Health Carlos III. His fundamental research is in the field of pulmonary and cardiovascular molecular and functional imaging. This research is directed toward biomarker (multimodality imaging, metabolic, and different omics) searches. He is the coauthor of over 180 articles and book chapters and coinventor of six patents, four of them European, and he is the cofounding partner of a technology-based company, Numio Technologies.



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