

Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

Chemical Engineering Journal

journal homepage: www.elsevier.com/locate/cej

Editorial



This Special Issue represents an impressive collection of either research articles and reviews of cutting edge science from selected research groups on Smart Nanomaterials and Nanostructures for Diagnostic and Therapy. Those are currently very hot topics in the Biomedicine research area, since nanotechnology is revolutionizing the area of medicine as it did in the past with other areas such as electronics, physics, or even robotics. Along this Special Issue we will find, basically, two types of approaches: disease treatment, in which cancer and infection are the most frequent conditions targeted by researchers in the area, and diagnosis, which includes different imaging techniques and theranostic. Additionally, there is a nanosafety perspective paper on the use of nanoformulations in medicine.

The development of novel treatments for complex diseases such as cancer, resistant infections or neurological disorders is a paramount necessity in the society of XXI century, specially taking into account the progressive aging of the population of developed countries.

One of the main problems of the current therapies against these diseases is their lack of selectivity. Therefore, their administration present severe side effects and systemic toxicity.

In the recent years, a huge number of smart nanodevices have been described. These nanosystems have been engineered for having amazing properties such as the capacity to release their transported cargo in response to stimuli, ability to recognize specifically diseased cells and to penetrate deeply inside diseased tissues, among others. The different scope of the materials presented in this Issue highlights the multidisciplinary area of nanomedicine. These multifunctional materials have been designed and synthesized combining the acquired knowledge in different fields such as materials science, physics, chemical engineering and synthetic chemistry, among others, and their evaluation requires the participation of biologists and clinicians.

Thus, nanomedicine cannot be endorsed to one particular field but it requires the participation of a multidisciplinary team with many different backgrounds. In this issue, different nanodevices suitable for the treatment of several pathologies are presented as an example of the potency of nanotechnology for the search of solutions to the health problems of the current society.

Editors

María Vallet-Regí

Antonio Salinas

Alejandro Baeza

Miguel Manzano