

Development of Multifunctionalised Polymeric Nanoprobes for Diagnostic and Therapeutic Applications



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Biography

Sanchez-Martin leads the NanoChemBio lab focuses on the development of therapeutic and diagnostic tools, based on nanotechnology, with a clear translational outcome. She has developed her research career between the UK and Spain. For the past 15 years she has been working in the area of nanotechnology in biomedicine. Nowadays, her research is carried out at the Center for Genomics and Oncology Research (GENYO) that is located in the Technology Park of Health Sciences (PTS) of Granada and integrated by Pfizer, University of Granada and Andalusian Government.

Abstract

Polymeric nanoparticles offer a great flexibility adapting its chemistry composition, size, stability, morphology and surface functionality. As a result, they are used in Biomedicine as drugs carrier systems and diagnostic agents for a wide range of applications in diagnosis, therapy and theranostics [1]. NanoChemBio lab is focused on the design, synthesis, scale-up and preclinical evaluation of multifunctionalised nanoprobes to be apply in biomedicine. Herein we will present our more recent findings. Currently we are carried on the validation of a theranostic nanodevice to treat breast cancer and to monitor treatment efficiency together with to determine localization of the tumour focus [2,3]. In another hand, we are developing a robust and stable targeting nanoprobe that allows for active targeting of either a fluorophore for active tracking or a drug for monitoring specific cell responses depending on the expression levels of surface proteins [4]. Related to our latest diagnostic advances, we have implemented a nanotechnology-based approach for capturing and detecting nucleic acids by flow cytometry will be presented [5]. This system allows for the detection of biotinylated molecular products followed by simple detection using a standard flow cytometer, a widely used platform in clinical and molecular laboratories, and therefore, is easy to implement.

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