EuroSciCon

EuroSciCon Conference on

Nanotechnology & Smart Materials

October 04-06, 2018
Amsterdam, Netherlands

Macarena Peran et al., Nano Res Appl Volume:4
DOI: 10.21767/2471-9838-C6-024

NOVEL PERSPECTIVES IN NANOMEDICINE: EXAMPLE OF ENGINEERED NANOPARTICLES FOR BREAST CANCER THERAPY

Macarena Peran[3], S Navarro-Marchal[1], V Cano-Cortes[2], J J Díaz-Mochon[2], R Sanchez-Martin[2] and J A Marchal[1]

[1]University of Granada, Spain
[2]GENYO, Parque Tecnológico de Ciencias de la Salud (PTS), Spain
[3]University of Jaén, Spain

The descend of medicine to a nanometer level has led to the development of new diagnostic and treatment strategies. Functionalized nanoscaled materials have been created to be used in the prevention and treatment of various diseases such as neurodegenerative disorders, cancer, atherosclerosis, diabetes and regenerative medicine, including tissue engineering and cell therapy. The incidence of breast cancer is increasing in the developing world and despite advances in cancer molecular profiling there is still no effective cure for some aggressive primary cancers. One of the main approaches of nanotechnology against cancer is the development of nanoparticles that deliver chemotherapy drugs directly to tumour cells. Here we present the generation of an effective, safe and non-toxic nanosystem for use *in vivo* with theranostic application for selective antitumor treatment. The nanodevice was designed to efficiently conjugate therapeutics and diagnostic cargoes based on the use of synthetic nanospheres that were multivalent and tri-functionalized with: a drug; a diagnostic agent and a tumour-specific peptide. *In vivo* evaluation of the nanodevice was conducted using an orthotopic xenotransplant mice model injected with the breast carcinona cell line (MDA MB 231). Treatment reduced tumour size and decreased side effect associated with Doxorubicin without any toxicity signs in treated mice

Biography

Macarena Perán has graduated with a BS in Biology and a MS in Biochemistry and Molecular Biology in 1996 from the University of Málaga, Spain. She moved to the Neuroscience Department at Durham University, UK, where she was awarded with a Marie Curie Fellowship and graduated in 2000 with a PhD. She then completed a Postdoctoral program in the Faculty of Medicine at Granada University. In 2005 and 2006, she was gone to Bath University, UK, and was a short-term Postdoctoral Fellow in Prof David Tosh lab. In 2011 she spent a year as a Visiting Scientist in the Salk Institute for Biological Studies, California in Prof Juan Carlos Izpisua-Belmonte lab. Actually, she is Reader in Anatomy, University of Jaen, and Member of the Scientific Advisory Board at Propanc Health Group Corporation. She has more than 50 peer-reviewed publications in international journals and has participated in more than 20 competitive research projects and has led 7 research contracts within the private sector.

mperan@ujaen.es