

ICONAN 2017

International Conference on **NANOMEDICINE**
And **NANOBIOTECHNOLOGY**

Sept 25–27, 2017
in **Barcelona**



Formulation of biological drugs using nanotechnology approaches

PROF. MARIA ALONSO
University of Santiago de Compostela

The progress over the last decades in the field of nanomedicine has led to the improved understanding of the biological barriers, the availability of new complex bioactive molecules and the design of new biomaterials and nanotechnologies. The nanopharmaceutical technology has greatly contributed to this progress by making feasible the nanoencapsulation and controlled delivery of complex molecules, as well as defining ways to scale-up the production of nanomedicines. Nevertheless, a significant amount of this research has relied in developing “moo too” delivery carriers, while more innovative initiatives have been oriented to the design of drug carriers, which suffer of safety concerns and/or poor pharmaceutical quality assessment.

Our group, being committed with the translation of ideas from the university through novel pharmaceutical nanotechnology, has designed novel nanostructured materials intended to transport drugs and antigens across biological barriers and to deliver them to the target tissue. During my presentation I would like to focus on specific applications of the nanotechnologies we have designed until now, notable in the area of cancer immunotherapy as well as in the area of oral and ocular delivery of complex macromolecules. I will present specific formulation approaches for the delivery of peptides, monoclonal antibodies and polynucleotides. I will also highlight that our experience in this field has greatly benefited from integrative approaches adopted by specifically designed consortia. Hopefully, the results of these cooperative efforts will help to accelerate the progress on the rational design of nanomedicines.

More information about these projects can be found at:

<http://www.usc.es/grupos/mjalonsolab/>

ACKNOWLEDGMENTS

The research activity has been funded by:

- The European Commission Seventh Framework Programme (FP7/2007-2013) (grant agreement n° 281035-TRANS-INT and grant agreement n° 2012-0028, the NanoFar European Doctorate, EMJD NanoFar) (see <http://www.trans-int.eu> and <http://www.erasmusmundus-nanofar.eu>)
- The European Commission Horizon 2020 Programme (grant agreement n° 646142 – NANOPILOT and grant agreement No. 642028-NABBA) (see <http://nabbaproject.eu> and <http://www.nanopilot.eu>)
- The Ministry of Economy of Spain, Ref. Ref. RTC-2016-4823-1 (GLAUKUS) and, Ref. RTC-2016-4884-1 (SEKEYE)