



## Scientific Program

### Wednesday 26th January

Time: Western European Time (Canary Islands local time)

09.00 - 09.30	<p><b>Welcome Ceremony</b>  Vice-rector of the University of La Laguna (ULL)  Ben Boyd (CRS President)  Carmen Évora (SPLC-CRS President)  Bruno Sarmento (SPLC-CRS Vice president)</p>
09.30 - 10.15	<p><b><u>PLENARY LECTURE 1</u></b>  <b>Ben Boyd</b>  University of Copenhagen, Denmark, and Monash University, Australia.  <i>"Metabolic labelling as a potential new approach to localised drug delivery"</i></p> <p><b>Moderator:</b> María Jesús Vicent (Príncipe Felipe Research Center, Valencia)</p>

## SESSION 1. Technological Tools in Advanced Drug Delivery Systems

**Moderator:** Bruno Sarmento. University of Porto

10.15 - 10.45	<p><b><u>Invited speaker</u></b>  <b>Nuno Azevedo</b>  Laboratory for Process Engineering, Environment, Biotechnology and Energy (LEPABE). Faculty of Engineering. University of Porto. Portugal.  <i>"Delivery of nucleic acid mimics into bacteria"</i></p>
10.45 - 11.45	<p><b><u>Short talks</u></b> (10 min + 5 min questions)</p> <p><i>"Protamine nanoparticles as non-viral vectors for gene-delivery in the treatment of glioblastoma"</i></p>

	<p><u>S. Barrios-Esteban</u>, R. Rahman, C. Alexander, M. Garcia-Fuentes and N. Csaba, Universidade de Santiago de Compostela.</p> <p><b><i>"Dexamethasone and melatonin co-loaded PLGA microspheres: potential chronic neuroprotective strategy for glaucoma"</i></b>  <u>M. Brugnera</u>; M. Vicario-de-la-Torre; V. Andrés-Guerrero; I. Bravo-Osuna; I.T. Molina-Martinez and R. Herrero-Vanrell, Complutense University of Madrid.</p> <p><b><i>"Peptide nano-vaccine against SARS-CoV-2 infection"</i></b>  <u>R.C. Acúrcio</u>, R. Kleiner, B. Carreira, D. Vaskovich, Y. Liubomirski, E. Yeini, C. Araújo, C. Plama, A.S. Viana, J. Gonçalves, R. Satchi-Fainaro, H.F. Florindo. University of Lisbon</p> <p><b><i>"Smart targeted nanohybrids as dual-approach drug delivery systems against colorectal cancer"</i></b>  <u>J. Gonzalez-Valdivieso</u>, R. Vallejo, A. Girotti, S. Rodriguez-Rojo, Mercedes Santos, F.J. Arias. University of Valladolid.</p>
11.45 - 12.15	<b>Break</b>
12.15 - 13.30	<p><b>Posters Session</b> (2-3 min each + 10-15 min for questions)</p> <p><b>Optimization of PLGA/PEI nanoparticles covered with poly(I:C) for cancer immunotherapy.</b>  <u>L. González-Melero</u>. University of Basque Country</p> <p><b>Amoebicidal Effect of Pitavastatin Nanoparticles in Acanthamoeba castellanii Neff.</b>  <u>A. Oliva</u>. Universidad de La Laguna.</p> <p><b>Cell-free synthesis of Ebola virus matrix protein VP40 Virus-like particles.</b>  <u>S. Gutiérrez-Gutiérrez</u>. Santiago de Compostela.</p> <p><b>Chamomilla pollen microcapsules as multistep delivery systems.</b>  <u>L. Valverde-Fraga</u>. Universidade de Santiago de Compostela.</p> <p><b>Gone with the Waste - Quantification of the exact composition of polymeric nanocapsules.</b>  <u>G. Berreco</u>. Universidade de Santiago de Compostela.</p> <p><b>Infliximab microencapsulation by Coaxial Ultrasonic Atomization preserves its biological activity: in vitro evaluation.</b>  <u>I. Lamela-Gómez</u>. Universidade de Santiago de Compostela.</p> <p><b>Carvacrol-loaded microcapsules by a coaxial method for varroosis control. Effective parameters on their production.</b>  <u>A. Luzardo-Álvarez</u>. Universidade de Santiago de Compostela.</p>

	<p><b>Mucoadhesive buccal formulations based on lyophilized liposomes: application to sildenafil citrate.</b>  <u>A. Sánchez Navarro</u>. Universidad de Salamanca</p> <p><b>Cationic liposomal formulation for cyclopirox nail administration.</b>  <u>F.J. Otero Espinar</u>. Universidade de Santiago de Compostela.</p> <p><b>Development of a liposomal formulation containing Cyclosporin A for the treatment of dry eye disease.</b>  <u>M.A. González-Cela Casamayor</u>. Complutense University of Madrid.</p> <p><b>Budesonide microparticles for ocular administration.</b>  <u>M. Guzmán-Navarro</u>. University of Alcalá.</p> <p><b>Moderator:</b> Luísa Corvo (University of Lisbon)</p>
13.30 - 15.00	<p><b>Time for Lunch</b></p>
15.00 - 16.25	<p><b>Posters Session</b> (2-3 min each + 10-15 min for questions)</p> <p><b>New treatment for fungal keratitis: A combined eye drops of two antifungals.</b>  <u>V. Díaz-Tomé</u>. Universidade de Santiago de Compostela</p> <p><b>Bevacizumab-loaded PLGA intravitreal implants prepared by supercritical fluid technology.</b>  <u>C. Bendicho-Lavilla</u>. Universidade de Santiago de Compostela.</p> <p><b>Bevacizumab loaded lipidic lyotropic liquid crystals as a promising platform for ocular diseases.</b>  <u>G. Blanco-Fernández</u>. Universidade de Santiago de Compostela.</p> <p><b>Development of surface-modified lipid-polymer hybrid nanoparticles: bulk formulation vs microfluidics.</b>  <u>E. Briffault</u>. Universidad de La Laguna.</p> <p><b>Microfluidics for precise tuning of cubosome nanoparticle size.</b>  <u>C.J.O. Ferreira</u>. University of Minho.</p> <p><b>Characterization and in vivo evaluation of quercetin-loaded zein nanoparticles.</b>  <u>R. Campión</u>. University of Navarra.</p> <p><b>A Nanotechnology-based Immunotherapeutic Strategy Against KRAS mutated Colorectal Adenocarcinoma.</b>  <u>F. Andrade</u>. Vall d'Hebron Institut de Recerca.</p> <p><b>Self-Illuminating Biocompatible Nanosystems can Induce Apoptosis Via Photodynamic Therapy (PDT).</b></p>

	<p><u>M. Abal-Sanisidro</u>. Health Research Institute of Santiago de Compostela (IDIS).</p> <p><b>Evaluation of Eudragit S100 Nanofibers as pH responsive antimicrobial release system.</b> <u>L. Miranda-Calderón</u>. Universidad de Zaragoza.</p> <p><b>Nucleic acid based medicinal products for Fabry disease: critical formulation factors to ensure effective delivery.</b> <u>I. Gómez-Aguado</u>. University of Basque Country.</p> <p><b>Fluorescence Cross-Correlation Spectroscopy reveals extent of association between liposomes and DNA and the number of DNA molecules per lipid nanoparticle.</b> <u>B.F.B. Silva</u>. INL - International Iberian Nanotechnology Laboratory.</p> <p><b>DOSY as an Alternative Technique to Monitor the Degradation of Polypeptide-Based Drug Delivery Systems.</b> <u>M.J. Vicent</u>. Centro de Investigación Príncipe Felipe.</p> <p><b>Moderator:</b> Rosa M<sup>a</sup> Hernández (University of the Basque Country).</p>
16.25 - 17.00	<p><b>PhD Thesis Award sponsored by Bial</b></p> <p><b>Moderator:</b> Rocío Herrero (University Complutense de Madrid)</p>
17.00 - 18.00	<p>Interactive Session with <b>Prof. Jesús Santamaría</b>. University of Zaragoza. <b><i>“A PhD degree and Beyond. Thoughts for early-career researchers”</i></b></p>

## Thursday 27th January

Time: Western European Time (Canary Islands local time)

09.00 - 09.45	<p><b><u>PLENARY LECTURE 2</u></b> <b>Camilla Foged</b> Department of Pharmacy. Vaccine Design and Delivery Group. University of Copenhagen. Denmark <b><i>"Opportunities and challenges in the delivery of mRNA vaccines"</i></b></p> <p><b>Moderator:</b> María Blanco (University of Navarra)</p>
------------------	--

## SESSION 2. Biomimetic Structures for Diagnosis and Therapy

**Moderator:** Susana Simões. Centre for Innovative Biomedicine and Biotechnology (CIBB) University of Coimbra

09.45 - 10.15	<p><b><u>Invited speaker</u></b> <b>Pieter Vader</b> CDL Research and Department of Experimental Cardiology. University Medical Center (UCM) Utrecht. Netherlands. <b><i>"Extracellular vesicle-mediated RNA delivery: From mechanistic insights to therapeutic applications"</i></b></p>
10.15 - 11.15	<p><b><u>Short Talks</u></b> (10 min + 5 min questions)</p> <p><b><i>"Functionalization of a meniscus prosthesis with polymeric coatings for the sustained release of anti-inflammatory drugs"</i></b> <u>A. Fernandez Blanco</u>, G. Lou, J. C. Campo, M. J. Alonso, Universidade de Santiago de Compostela.</p> <p><b><i>"Exosome-mediated MEK1 silencing is a promising approach against triple negative breast cancer regression"</i></b> <u>D. Ferreira</u>, C. Santos-Pereira, M. Costa, J. Afonso, A. Longatto-Filho, F. Baltazar, R. Kalluri, J. Moreira and L.R. Rodrigues, University of Minho.</p> <p><b><i>"Etoposide and edelfosine lipid nanomedicines as a synergistic combination therapy for neuroblastoma"</i></b> <u>SH. El Moukhtari</u>, G.M. Pelin, M.J. Blanco-Prieto, University of Navarra.</p> <p><b><i>"Pollen-based platforms for pulmonary delivery of nanoencapsulated rifabutin"</i></b> <u>S. Robla</u>, J.M. Ageitos, R. Ambrus, N. Csaba, Universidade de Santiago de Compostela.</p>

11.15 - 11.30	<p><b>Posters Session</b> (2-3 min each + 5 min for questions)</p> <p><b>In vitro production, isolation and characterization of Ebola virus-like particles.</b> <u>R. Mellid-Carballa</u>. Universidade de Santiago de Compostela.</p> <p><b>Self-assembling dendrimer for the delivery of antisense NAMs into bacteria.</b> <u>M. Gomes</u>. University of Porto.</p> <p><b>Transtympanic delivery of the pneumoccal endolysin MSlys via PEGylated liposomes.</b> <u>M. D. Silva</u>. University of Minho.</p>
11.30 - 12.00	<b>Break</b>

## SESSION 3. Innovative Strategies for Drug Targeting

**Moderator:** Helena Florindo. University of Lisbon

12.00 - 12.30	<p><b>Invited speaker</b> <b>Jesús Santamaría</b> Department of Chemical and Environmental Engineering. Instituto de Nanociencia y Materiales de Aragon (INMA). University of Zaragoza <b><i>“Extracellular vesicles as selective vectors for delivery of nanomaterials to tumors”</i></b></p>
12.30 - 13.45	<p><b>Short Talks</b> (10 min + 5 min questions)</p> <p><b><i>“Lipid-based non viral gene therapy for Fabry disease:Ex vivo and in vivo evaluation”</i></b> <u>J. Rodríguez-Castejón</u>, I. Gómez-Aguado, M. Beraza-Millor, M.A. Solinís, A. del Pozo-Rodríguez and A. Rodríguez-Gascón, University of the Basque Country.</p> <p><b><i>“Treating Neurodegeneration with Synergistic Combinations of Polypeptide-Based Nanoconjugates Targeting Oxidative Stress and Inflammation”</i></b> <u>I. Conejos-Sánchez</u>, E. Masiá, M.J. Vicent, Centro de Investigación Príncipe Felipe.</p> <p><b><i>“Combining glucose-responsive nanoparticles and iPSCs differentiation: an innovative strategy to treat diabetes”</i></b> <u>JM. Marques</u>, A.M. Carvalho, R. Nunes, J. das Neves, H. Florindo, D. Ferreira, B. Sarmiento, University of Porto.</p> <p><b><i>“Multifunctional nanoparticles as an anticancer approach for the</i></b></p>

	<p><b><i>intracellular delivery of monoclonal antibodies</i></b>  <u>A.M. López-Estévez</u>, L. Sanjurjo, J. Pellico, R.T.M. de Rosales, D. Torres, and M.J. Alonso, Universidade de Santiago de Compostela.</p> <p><b><i>“Non-viral delivery of CRISPR/Cas9 DNA for gene editing via multivalent cationic liposome system”</i></b>  <u>D.A. Sousa</u>, R. Gaspar, J. O. Ferreira, F. Baltazar, B. Silva 2 and L.R. Rodrigues. University of Minho.</p>
13.45 - 15.15	<b>Time for Lunch</b>
15.15 - 16.20	<p><b>Posters Session</b> (2-3 min each + 10-15 min for questions)</p> <p><b>Ultraflexible lipid vesicles allow in vitro skin permeability of Cyanocobalamin: a potential treatment for Vitamin B12 deficiency.</b>  <u>A.J. Guillot</u>. University of Valencia.</p> <p><b>Targeted cathelicidin nanomedicines as novel gluco regulator for diabetes therapy</b>  <u>C. Cristelo</u>. University of Porto.</p> <p><b>Preclinical basis of nanostructured lipid carriers (NLC) loaded with aflibercept: design, development and characterization.</b>  <u>X. García-Otero</u>. Universidade de Santiago de Compostela.</p> <p><b>Infliximab-loaded PLGA nanoparticles: design, development, and physicochemical characterization.</b>  <u>R. Varela-Fernández</u>. Universidade de Santiago de Compostela.</p> <p><b>Inulin-PCL nanoparticles as an adjuvant delivery system for highly purified recombinant antigens.</b>  <u>S. Jesus</u>. University of Coimbra.</p> <p><b>Novel polypeptide-based conjugates for mitochondrial targeting.</b>  <u>C. Pegoraro</u>. Centro de Investigación Príncipe Felipe.</p> <p><b>Receptor-targeted nanocarriers modulate cannabinoid anticancer activity through delayed cell internalization.</b>  <u>M. Durán-Lobato</u>. Universidad de Sevilla.</p> <p><b>3D printed tacrolimus suppositories for the treatment of ulcerative colitis.</b>  <u>I. Seoane-Viaño</u>. Universidade de Santiago de Compostela.</p> <p><b>Moderator:</b> Alicia Rodríguez-Gascón (University of the Basque Country).</p>
16.20 - 17.25	<p><b>Posters Session</b> (2-3 min each + 10-15 min for questions)</p> <p><b>Development of shear-responsive microaggregates based on PLGA nanoparticles for targeted delivery.</b>  <u>L. Martín Banderas</u>. Universidad de Sevilla.</p>

**Lipid-polymeric hybrid nanoparticles functionalized with a specific aptamer: cellular uptake and cytotoxicity.**

P. Díaz-Rodríguez. Universidade de Santiago de Compostela.

**Organs toxicity of oligonucleotide aptamer-lipid-polymer nanoparticles for osteoporosis.**

R. Reyes. Universidad de La Laguna.

**Immunotoxicological properties of yeast-derived glucan particles.**

J. Panão Costa. University of Coimbra.

**The influence of curcumin-encapsulated glucan nanoparticles on oxidative stress in liver cells.**

M. Colaço. University of Coimbra.

**Preparation, characterization and efficacy of polylactide glycolide-chitosan nanoparticles loaded with Curcuma.**

J. Molpeceres. University of Alcalá

**Polymeric nanoparticles loaded anti-viral peptide efficiently inhibits SARS-CoV-2.**

A. Mali. University of Luigi Vanvitelli and University of Santiago de Compostela.

**Novel Hybrid Nanosystem for Magnetically Targeted Antitumoral Activity Enhancement.**

N. Cruz. University of Lisbon.

**Moderator:** Bruno Silva (International Iberian Nanotechnology Laboratory, Braga).



Friday 28th January

Time: Western European Time (Canary Islands local time)

09.00 - 09.45	<p><b><u>PLENARY LECTURE 3</u></b> <b>Álvaro Mata</b> Chair in Biomedical Engineering and Biomaterials. School of Pharmacy. University of Nottingham. <b><i>"Bioengineering biomimetic 3D environments and in vitro models through supramolecular self-assembly"</i></b></p> <p><b>Moderator:</b> Carmen Álvarez (University of Santiago de Compostela)</p>
------------------	---

## SESSION 4. Hydrogels and 3D Models for Drug Delivery Systems

**Moderator:** Patricia Díaz-Rodríguez. University of Santiago de Compostela

09.45 - 11.00	<p><b><u>Short Talks</u></b> (10 min + 5 min questions)</p> <p><b><i>"Biocompatible Injectable Smart Hydrogels-based Depot Systems: A Dual-Anticancer Drug Sustained Release Strategy"</i></b> D. Rafael, F. Andrade, M.M. Roca-Melendres, D. Hide, I. Raurell, M. Martell, S. Schwartz, M. Oliva, E. Duran-Lara and I. Abasolo. Vall D'Hebron Institut de Recerca.</p> <p><b><i>"Modulating mucoadhesion and mucopenetration in multiresponsive nanogels"</i></b> M. Calderón, S. Orellano, J. Udabe and A. Sonzogni. University of the Basque Country.</p> <p><b><i>"Does it GUT what it takes? A new 3D bioengineered in vitro intestinal model to predict permeability"</i></b> M.H. Macedo, A.S. Barros, E. Martinez, C.C. Barrias, B. Sarmento, University of Porto.</p> <p><b><i>"Uterine leiomyoma 3D preclinical model for local delivery testing"</i></b> P. García-García, A. Salas, C. Évora, P. Díaz-Rodríguez, T.A. Almeida and A. Delgado, Universidad de La Laguna</p> <p><b><i>"Evaluation of lipid nanosystems for cancer treatment in static and non-static 3D models"</i></b> M. Cascallar, A. Martins, M. Ferrero, E. Escorihuela, S. Calabuig-Fariñas, L. Diéguez, E. Jantus-Lewintre, M. de la Fuente. Health Research Institute of Santiago de Compostela (IDIS)/CIBERONC</p>
11.00 - 11.30	<p><b>Break</b></p>

11.30 - 12.30	<p><b>Posters Session</b> (2-3 min each + 10-15 min for questions)</p> <p><b>Carboxymethyl cellulose-based 3D scaffolds for wound healing.</b> <u>C. Alvarez-Lorenzo</u>. Universidade de Santiago de Compostela.</p> <p><b>Gelatin hydrofilms with bioactive compounds Aloe vera and EGF for chronic wound healing applications.</b> <u>I. Garcia-Orue</u>. University of the Basque Country</p> <p><b>A novel sumecton enriched gelatin-based scaffold for bone regeneration.</b> <u>I. Lukin</u>. University of Basque Country.</p> <p><b>Extracellular vesicle-loaded hydrogel for stimulating cardiac repair after myocardial infarction.</b> <u>E. Garbayo</u>. University of Navarra.</p> <p><b>Novel injectable thermosensitive hydrogel containing chitosan-dextran sulphate nanoparticles for antigen delivery.</b> <u>E. Giuliano</u>. University of Santiago de Compostela.</p> <p><b>Functionalized hyaluronic acid-based hydrogel for ophthalmic application. Preliminary studies.</b> <u>A. Aragón-Navas</u>. Complutense University of Madrid.</p> <p>Mucoadhesive nanoparticles for ocular delivery of ketorolac. <u>M. Oliva</u>. Universitat de Barcelona.</p> <p><b>Licensing hydrogels maintain the immunomodulatory phenotype of human mesenchymal stromal cells in a murine colitis model.</b> <u>A. Gonzalez-Pujana</u>. University of the Basque Country</p> <p><b>Moderator:</b> Dolores Torres (University of Santiago de Compostela).</p>
------------------	---

## SESSION 5. Young Scientist Networking

**Moderators:** Cláudia Martins (Univ. Porto), Souhaila El Moukhtari (Univ. Navarra), Mireya L. Borrajo (Univ. Santiago de Compostela) and Patricia García-García (Univ. La Laguna).

12.30 - 13.30	<p><b>Short Talks</b> (7 min + 3 min questions)</p> <p><b><i>"Exploiting the chemotherapeutic and immunomodulatory effect of brain and glioblastoma dual-targeted nanoparticles – a nanomedicine, chemistry and tumor biology therapeutic recipe making use of a novel tumor niche-recapitulating 3D spheroid construct"</i></b> <u>C. Martins</u>, C.M. Barbosa, M. Araújo, S. J. Smith, M. J. Oliveira, D. Lamprou, R. Rahman, J. W. Aylott, B. Sarmento. University of Porto.</p> <p><b><i>"Nanosystems for the development of mRNA vaccines"</i></b> <u>M.L. Borrajo</u>, S. Anthiya, G. Lou, and MJ. Alonso. University of Santiago de Compostela</p> <p><b><i>"mRNA Reprogramming Matrices for driving chondroblast differentiation"</i></b></p>
------------------	--

	<p><b><i>in vitro and in vivo ”</i></b>  <u>H. Rilo-Alvarez</u>, A. M. Ledo, M. Lopez-Peña, F. M. Muñoz, A. Vidal, M. García- Fuentes. University of Santiago de Compostela</p> <p><b><i>“Nanoclay-incorporated HA/alginate scaffolds as SDF-1 smart delivery-platforms for bone tissue engineering”</i></b>  <u>I. Erezuma</u>, , I. Lukin, P. García-García, A. Delgado, R. Reyes , C. Evora and G. Orive. University of Basque Country.</p> <p><b><i>“Extracellular vesicles from hair follicle and adipose tissue-derived mesenchymal stem cells: Flow cytometry characterization and functional comparison for the treatment of diabetic ulcers”</i></b>  <u>K. Las Heras</u>, F. Royo, C. Garcia-Vallicrosa, M. Igartua, E. Santos-Vizcaino, J.M. Falcon-Perez, R Hernandez. University of Basque Country.</p> <p><b><i>“Direct powder extrusion 3D printing of polyhydroxybutyrate implants for prolonged drug release”</i></b>  <u>S. Moroni</u>, M. Tiboni, L. Casettari. University of Urbino</p>
13.30 - 15.00	<b>Time for Lunch</b>

## FINAL SESSION. Discussion: Positive-negative aspects of brain targeted drug delivery systems

15.00 - 16.00	<p><b>Jose Luis Lanciego vs Meritxell Teixidó</b></p> <p><b>Jose L. Lanciego</b>  Head of department of Neuroscience at the Center for Applied Medical Research (CIMA). University of Navarra.</p> <p><b>Meritxell Teixidó</b>  Chief Executive Officer/Chief Scientific Officer at Gate2Brain SL. Barcelona. Spain.</p> <p><b>Moderator:</b> M.J. Alonso (University of Santiago de Compostela)</p>
16.00 - 16.30	<p><b><i>Awards for the best oral communication and poster.</i></b></p> <p><b><i>Closing ceremony</i></b></p>
16.30 - 17.30	<p><b><i>General Assembly of the SPLC-CRS</i></b></p>