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About

Francisco Fernandez-Trillo (Paco) is a Birmingham Fellow working on the development of novel polymeric materials that can find applications at the Chemistry Biology-Interface, with a special focus in the development of novel antimicrobials.

With a background in Organic and Polymer Chemistry, Paco's expertise spans across several disciplines including Natural Product Synthesis, Materials Science, the synthesis of Smart Scaffolds, and the preparation of complicated polymeric nanomaterials such as Dendrimers or Polymeric Vesicles. His research has found application in areas such as Drug Discovery and Synthesis, Biocatalysis, Magnetic Resonance Imaging, Sensing, and Synthetic Biology.

Qualifications

- Ph.D, Organic Chemistry, Universidad de Santiago de Compostela (USC), 1999 - 2004
- MChem, Organic Chemistry, , USC, 1998-1999
- BSci, Chemistry, USC, 1993 - 1998
- Member of the Royal Society of Chemistry, 2011

Biography

Francisco Fernandez-Trillo (Paco) obtained his degree in Chemistry in 1998 from the University of Santiago de Compostela (Spain), where he specialised in Organic Chemistry. At the same university Paco undertook postgraduate studies and obtained a PhD in 2004. Under the supervision of Prof Susana López Estévez, he developed the total synthesis of several marine natural polyacetylenes with interesting biological properties. After that, Paco moved to the field of polymer chemistry and joined the group of Prof Neil Cameron at the University of Durham (UK) in 2005. As part of the EU training network 'SmashyBio', Paco worked on the development of highly porous materials for the reversible immobilisation of biomolecules. In 2006, he returned to the University of Santiago de Compostela to work with Profs Ricardo Riguera and Eduardo Fernandez-Megia, on the development on novel dendrimeric materials for applications at the chemistry-biology interface.

Between october 2009 and March 2013, Paco worked as a research fellow in the Division of Drug Delivery and Tissue Engineering at the School of Pharmacy in Nottingham, on the development of novel polymeric materials for drug delivery and synthetic biology. Work in Nottingham focused on the development of novel synthetic polymeric vesicles that could act as synthetic cells and mimic microbial communication or Quorum sensing. In April 2013 Paco joined the University of Birmingham, as part of the Birmingham Fellowship program to work in Biomedical applications of Nanotechnology.

Research

RESEARCH THEMES

- Biomedical Applications of Nanotechnology

RESEARCH ACTIVITY

- Stimuli-responsive nanomaterials as imaging probes to detect microbial pathogens
- Nanomaterials to interfere with 'non-conventional' antimicrobial targets
- Functional nanomaterials for the delivery of conventional antibiotics in a targeted way

Publications

- Cooper, G. J. T., Bowman, R. W, Magennis, E. P., Fernández-Trillo, F., Alexander, C., Padgett, M. J., and Cronin, L. (2012) Directed Assembly of Inorganic Polyoxometalate-based Micrometer-Scale Tubular Architectures by Using Optical Control. Angew. Chem., Int. Ed. 51, 12754–12758.
- Yaşayan, G., Redhead, M., Magnusson, J. P., Spain, S. G., Allen, S., Davies, M. C., Alexander, C., and Fernández-Trillo, F. (2012) Well-defined polymeric vesicles with high stability and modulation of cell uptake by a simple coating protocol. Polym. Chem. 3, 2596–2604.
- Xue, X., Pasparakis, G., Halliday, N., Winzer, K., Howdle, S. M., Cramphorn, C. J., Cameron, N. R., Gardner, P. M., Davis, B. G., Fernández-Trillo, F., and Alexander, C. (2011) Synthetic Polymers for Simultaneous Bacterial Sequestration and Quorum Sense Interference. Angew. Chem., Int. Ed. 50, 9852–9856.
- Fernández-Trillo, F., van Hest, J. C. M., Thies, J. C., Michon, T., Weberskirch, R., and Cameron, N. R. (2009) Reversible Immobilization onto PEG-based Emulsion-templated Porous Polymers by Co-assembly of Stimuli Responsive Polymers. Adv. Mater. 21, 55–59.

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