

PRESENTER INFORMATION



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BIOGRAPHICAL SKETCH

Currently, Full Professor in Department of Biomedical Engineering and Head of the Department of Biomedical Engineering at the University Medical Center Groningen. Former Full Professor in Pharmaceutical Nanotechnology at University of Helsinki. Currently, Research Director at the University of Helsinki, Faculty of Pharmacy, and Chairman and co-founder of Capsamedix Oy, Coordinator of H2020 EU MSCA-ITN P4 FIT network, and Scientific Director of HTRIC (NLs). Visiting Professorships at the Shanghai Jiao Tong University School of Medicine and University of Tartu. Research interests include the development of nanoparticles/nanomedicines and biomaterials for biomedical applications. Co-author of +400 publications (h-index = 70) and 4 patents and +181 invited talks. Prof. Santos has received prestigious awards/grants, e.g., the "Talent Prize in Science" in 2010 (Portugal), ERC Starting Grant in 2013 and ERC Proof-of-Concept Grant in 2018, Young Researcher Award in 2013 Faculty of Pharmacy, the Academy of Finland Award for Social Impact in 2016, and the CRS Young Investigator Award 2021.

TITLE: Porous biomaterials for solving medical problems: from design to biomedical applications

ABSTRACT

The recent cutting-edge advances on porous nanomaterials is anticipated to overcome some of the therapeutic window and clinical applicability of many drug/peptide molecules and can also act as innovative theranostic platforms and tool for the clinic in the future. Amongst the different experimental treatments, active cancer immunotherapy and targeted to the injured heart hold great promise for the future treatment of these diseases. In this work, prominent porous nanosystems, such as biohybrid nanocomposites made of different nanoparticles (porous silicon) and cancer cell-based membrane materials are presented and discussed as potential platforms for the individualization of medical intervention and biomedical applications. Examples on how these porous nanomaterials can be prepared and scaled-up, as well as how they can be used to enhance the drug's targetability, intracellular drug delivery for both cancer chemo- and immune-therapy applications as well as other applications, will be highlighted and discussed.