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Title: Nano-Microbicides for Preventing Sexual HIV Transmission

Abstract: Prevention remains a cornerstone in the fight against HIV/AIDS. Microbicides are products intended to be administered in the vagina and/or rectum in order to prevent early HIV-1 transmission events at the mucosal level. These topical products have been developed and tested in different clinical trials, but efficacy has been, at best, modest. One important reason behind failure to protect from viral transmission relates to the lack of adherence and inconsistent product use, which leads to erratic local drug levels of microbicide drugs. New product design and formulation strategies have been implemented in order to circumvent this matter, including solutions based on nanotechnology. Our research group has been engaged in the development of nano-microbicides for the last decade, providing new insights on the potential of nanocarriers for enhancing the pharmacokinetics of promising drug candidates. This presentation will focus on our efforts to understand the interactions of nanosystems with key cell populations involved in HIV-1 sexual transmission and the mucosal environment, which ultimately led to the development of vaginal nanoparticles-in-films and nanoparticles-in-thermosensitive enemas as putative novel microbicides.

Dr. José das Neves

Professional Biography

José das Neves is an Assistant Researcher at INEB – Institute of Biomedical Engineering & i3S – Institute for Research and Innovation in Health, University of Porto, Portugal. He holds a BSc in Pharmaceutical Sciences (2003), an MSc in Pharmaceutical Technology (2007) and a PhD in Pharmaceutical Sciences (2013), all from the University of Porto. His research work lies at the interface between pharmaceutical nanotechnology, mucosal drug delivery and infectious diseases. José contributed in particular to the development of various polymeric nanoparticle-based platforms for the vaginal and rectal delivery of anti-HIV microbicide drugs. His current research focuses on the development of drug delivery strategies for the prevention or treatment of sexually transmitted infections and lower female genital tract diseases. He is the co-author of 93 peer-reviewed articles, 11 book chapters and 67 presentations at scientific meetings. José is also the co-Editor of 4 scientific books, Associate Editor of *Frontiers in Pharmacology* (Frontiers Media) and *PLOS ONE* (Public Library of Science), and Editorial Board member of *Drug Delivery Letters* (Bentham Science) and *4Open* (EDP Sciences).