EUROMAT 2019 / F: Materials for Healthcare

SYMPOSIUM: F3

Title: Biomaterials for therapeutic delivery

Organizer	Institution	Contact email
Alejandro Sosnik	Technion-Israel Institute of Technology, Israel	sosnik@technion.ac.il
Jöns Hilborn	Uppsala University, Sweden	jons.hilborn@kemi.uu.se
Hélder A. Santos	University of Helsinki, Finland	helder.santos@helsinki.fi

Abstract

Biopharmaceutical drawbacks of therapeutic agents such as poor aqueous solubility, physicochemical instability in the biological environment, low bioavailability in the target tissue/organ, and inconvenient biodistribution and off-target toxicity challenge the treatment of disease. The design of advanced drug delivery systems based on the combination of active agents with biomaterials of fine-tunable features such as chemical composition (e.g., ceramics, polymers, and composites) and structure, biodegradability, size, shape and morphology has revolutionized the field of pharmaceutical R&D and improved the diagnosis and treatment of disease. The ability to localize the release by capitalizing on the presence of biological barriers (e.g., mucus), control the release rate and target drugs to specific body sites are key challenges that under development. This translation of innovative biomaterials-based pharmaceutical products from the laboratory to the market is just emerging to appear. The understanding of the relationship between the structural properties of the biomaterials and the biological effects of the resulting innovative products is critical to rationalize their design and production. In addition, the implementation of advanced scalable and standardized processing technologies that ensure maximum quality and stability is fundamental for regulatory approval and to enable production in an industrial setting and thus, to pave the way for their clinical translation.

This symposium will serve as a forum for the discussion of the new advances in the field of biomaterials for drug delivery applications with a translational vision. It aims to make a significant contribution to the understanding of the main challenges faced by the field in the years to come. The symposium will gather experts from academia, industry and regulatory agencies and promote the discussion on the fundamental milestones to realize innovative delivery systems into products.

Target topics: Smart biomaterials; nanoparticles, microparticles, composites and hierarchical particulate biomaterials; advanced production technologies; diagnosis, treatment, theranostics; targeting strategies