Talk:

Controlled drug delivery systems for the treatment of skin wounds

Non-healing wounds pose a major clinical burden affecting an increasing number of patients and consequently afflicting the health care system. Impaired healing of skin wounds is a challenging therapeutic task often caused by chronicity and associated with an increased susceptability to severe bacterial wound infections.

Still, effective therapeutics are missing as current treatment strategies for wounds mostly rely on wound dressings providing a moist environment and protecting the wound area against external harms. In terms of effective drug delivery to a wound, several prerequisites are of importance, including enhancement of cell proliferation and migration and the controlled release of active substances to promote wound healing and/or eradicate pathogens. In this context, electrospun fiber systems show a great potential. Such fibers comprise diameters in the nano- to micrometer range closely mimicking the structure of the extracellular matrix, thus favoring cell adhesion and proliferation. The fibers can be loaded with actives and provide controlled release over longer time intervals. The talk will present three different fiber formulations, incorporating different actives. The first formulation contains antimicrobial polymers and releases dexpanthenol as well-known wound healing active. The second formulation consists of a complex core shell geometry incorporating a growth factor and the third formulation comprises an anti-infective substance and effectively eradicates common wound pathogens.

Short CV:

Maike Windbergs is a full professor for Pharmaceutical Technology and the director of the Institute for Pharmaceutical Technology and Biopharmaceutics at Goethe University, Frankfurt am Main, Germany. She received a PhD in Pharmaceutical Technology and spend several research stays at leading international universities, as Harvard University, USA, Twente University, The Netherlands and the University of Helsinki, Finland. Maike Windbergs is the author of over 80 articles and book chapters and received numerous awards. Her research interests are centered around novel drug delivery approaches to treat infectious and inflammatory diseases of epithelial tissues such as the skin as well as the intestinal and buccal mucosa.