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#### Towards understanding the safety and biocompatibility of electrospun fibers

Kaisa Põhako, Karin Kogermann, Tanel Tenson, Külli Kingo

Institute of Pharmacy, Faculty of Medicine, University of Tartu, Tartu, Estonia



Every year the number of patients with chronic wounds increases because of population aging and non-efficient wound treatment methods. Most chronic wounds are infected with bacterial biofilms. The presence of bacterial biofilms and the lack of good topical antimicrobial treatment options make the wound care even more difficult. Therefore, new strategies for wound management are needed. One wound dressing solution could be the antimicrobial electrospun nanofibers which enable to incorporate different drugs into their structure and deliver these successfully into the wound area. With this new potential treatment, it is important to test the safety and biocompatibility of these electrospun fibers before their administration to patients.

The aim of this study was to test the safety and biocompatibility of electrospun fibrous matrices with and without antimicrobial agents on different eukaryotic cells. Three different eukaryotic cell lines were used (baby hamster kidney cells (BHK-21), human lung fibroblasts (MRC-5) and primary fibroblasts obtained from patients). The study had all relevant ethical committee permissions. Experiment setup was based on modified MTS assay that measures the cell viability. Morphology of fibers and biocompatibility were evaluated with scanning electron microscopy (SEM). The results showed that all tested electrospun fibers were safe and biocompatible. However, there were some differences in the viability of cells when pristine polymeric matrices and matrices with antimicrobial agents were compared. Furthermore, the behaviour of different cells varied. Further studies will test the cell migration, proliferation and differentiation on electrospun matrices in more depth in order to understand better the cell-fiber interactions.

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