

## Abstract

Platelet products can be used, thanks to the broad range of bioactive molecules, either as a supplement for cell culturing in vitro alone or for development of cell- or cell-free scaffolds in diverse fields in regenerative medicine. The aim of this study was to prepare several types of platelet products. The concentration of selected molecules were observed. Subsequently, these products were tested with cell cultures in vitro alone or in combination with nanofibres scaffolds prepared by electrospinning or centrifugal spinning.

It was found out, that platelets products contains chemokine RANTES and growth factor PDGF in the highest concentrations. It was further discovered the content of pro and antiinflammatory interleukins and other growth factors. Platelet lysat in concentration 7% is sufficient to replace FBS in keratinocytes and fibroblasts cultures. In the other experiments, platelets in different concentrations were adhered to the scaffolds prepared by electrospinning and centrifugal spinning. Thus prepared scaffolds promote the proliferation and viability of all tested cell types in dose-dependent manner. In the last experiment, the individual components of platelet concentrate were separated and characterized. Their effect to the cell culture were tested. It was examined the synergic effect of platelets bioactive molecules and mediators in plasma.