



PHEA-PLLA SCAFFOLDS FOR SOFT TISSUE REGENERATION PREPARED VIA THERMALLY INDUCED PHASE SEPARATION

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One of most important features that a material should have in order to be utilized for tissue engineering applications is its biocompatibility and its chemical surface. These properties are required for a high degree of cell adhesion on the scaffold. Poly-L-lactic acid (PLLA) is a biocompatible synthetic polymer approved by the Food and Drug Administration for human clinical applications. It has been largely employed, in the last years, as a constituent of surgical and implantable devices. PHEA is a biocompatible water-soluble synthetic polymer, with a protein-like structure, whose use as a drug carrier and as starting material for many other biomedical and pharmaceutical applications has been reported in the literature. In this work a copolymer (PHEA-PLLA) of the aforementioned polymers was synthesized and characterized the possibility to produce porous scaffolds with it was assessed. The results have shown that is possible to prepare scaffolds of PHEA-PLLA via Thermally Induced Phase Separation (TIPS). The scaffolds as-obtained present on their bulk an open porous structure with interconnected pores whose average pore size was ~ 20 μm . Moreover a cloud point curve for the system PHEA-PLLA/Dioxane/water was built in order to find the more appropriate temperatures for the TIPS process.