(P 48) Biodegradable Poly(L-Lactic Acid) Scaffolds with Internal Hyaluronic Acid Coating. Biological Response *In Vitro*

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Poly(L-lactic acid), a synthetic biodegradable polyester, is widely accepted for many tissue engineering applications. Hyaluronic acid (HA), as a polysaccharide of the extra cellular matrix (ECM), besides exhibiting an excellent biocompatibility, influences cell signaling, growth and differentiation. A combination between these materials might be interesting for tissue engineering studies.

However, HA must be chemically modified for this use because of its easy dissolution in water and quick degradation in biological environments. Glutaraldehyde, GA, has been proposed as crosslinking agent to produce HA hydrogels. However, accordingly to the literature, there are contradictory results about the experimental protocol to be used, and relating to the cytotoxicity caused by glutaraldehyde remaining in the sample after crosslinking reactions.

In this study, crosslinking was performed by immersion of HA in water-acetone mixtures containing GA. Reaction was performed in several steps with increasing water/acetone ratios. Higher GA concentrations and higher crosslinking reaction times than the literature were necessary in the addition to the multistep procedure to obtain HA samples that do not dissolve in water within *in vitro* culture times. Poly(L-lactic acid) tridimensional scaffolds were made by compression moulding followed by particulate leaching, and after the scaffolds' impregnation with soluble HA and drying, there was a subsequent crosslinking reaction with glutaraldehyde with the procedure described above.

A morphological study and physical characterization of the hybrid scaffolds, and preliminary results with human fibroblasts and human dental pulp mesenchymal cells show the ability of these scaffolds for tissue engineering applications.