

S5-P.16**Bio-functionalized atelocollagen-polysaccharide hydrogels**

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Extracellular matrix plays numerous roles for anchorage dependent cells this is why mimicking extracellular matrix (ECM) using tissue engineering techniques can be very difficult. Collagen and hyaluronic acid are major components of the ECM, having structural role and also in ECM synthesis, for stimulating cell proliferation, cell migration and adhesion. The structures formed by hyaluronic acid in the ECM have the capacity of entrapping water and ions for tissue hydration. Cell encapsulation in matrices obtained in vitro represents a direction with great potential for tissue regeneration. In our study, we have evaluated the influence of hyaluronic acid on the contraction degree of an atelocollagen-polysaccharide based hydrogel with encapsulated cells. Atelocollagen based hydrogel was obtained using functionalized chitosan as a crosslinker and also as a structural component for encapsulation of adipose derived stem cells. The cytotoxicity of the hydrogels was studied by performing MTT test. The contraction degree and cell proliferation were tested for 1:3 and 1:6 reports of hyaluronic acid to atelocollagen and for different reports of functionalized chitosan as well. Cell proliferation measurement was performed with AlamarBlue®. No difference was found between the contraction degrees of the hydrogels with different reports of hyaluronic acid to atelocollagen. AlamarBlue tests for these hydrogels showed no differences regarding cell proliferation. The contraction degree was influenced by the quantity of crosslinker added. In this study new hydrogels based on atelocollagen were obtained, with a polysaccharide as crosslinker, non-cytotoxic and suitable for cell encapsulation. The contraction degree of the hydrogels and cell proliferation were not influenced by the quantity of hyaluronic acid added, but by the quantity of functionalized polysaccharide.