face morphologies, and pH/swelling dependence at pH 3, 7.4 and 9. To evaluate sponges' suitability for cell studies, ATDC5 chondrocyte-like cells were seeded onto CSG sponges and ATDC5 viability (MTS assay), proliferation (DNA test), morphology (SEM analysis) and matrix production (GAGs quantification) were assessed after 14, 21 and 28 days of culture. ATDC5-sponge constructs showed a significant higher adhesion, proliferation and matrix production with the time of culture when compared to Cht, suggesting CSG sponges as potential candidates for cartilage TE strategies. Acknowledgements. Thanks to Portuguese Foundation for Science and Technology, STREP Project HIPPOCRATES (NMP3-CT-2003-505758) and European NoE EXPERTISSUES (NMP3-CT-2004-500283)

(OP 211) Novel Genipin Cross-linked Chitosan-Silk Based Sponges for the Regeneration and Repair of Cartilage Using a Tissue Engineering Approach

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Development of materials that can interact positively with tissues is important to regenerative medicine strategies success. Cartilage tissue engineering (TE) scaffolding is a field of continuous evolution, and sponges derived from the combination of polysaccharides and proteins are expected to mimic the naturally occurring environment in the articular cartilage matrix, providing an optimum environment for tissue growth and regeneration. Chitosan (Cht) and Bombyx mori silk fibroin (SF) are excellent candidates for sponges design due to their intrinsic characteristics. The present work aimed to improve the chitosan biocompatibility through blending with Cht-SF and genipin-cross-linking. Hydrogels, produced by cross-linking of Cht-SF, were freeze-dryed to obtain the cross-linked chitosan/silk (CSG) sponges. Rheological and mechanical properties, structural aspects and morphological features of CSG sponges were evaluated. CSG sponges possess stable and ordered structures due to protein conformation changes from alpha-helix/random coil to beta-sheet structure, porous and globular-like sur-