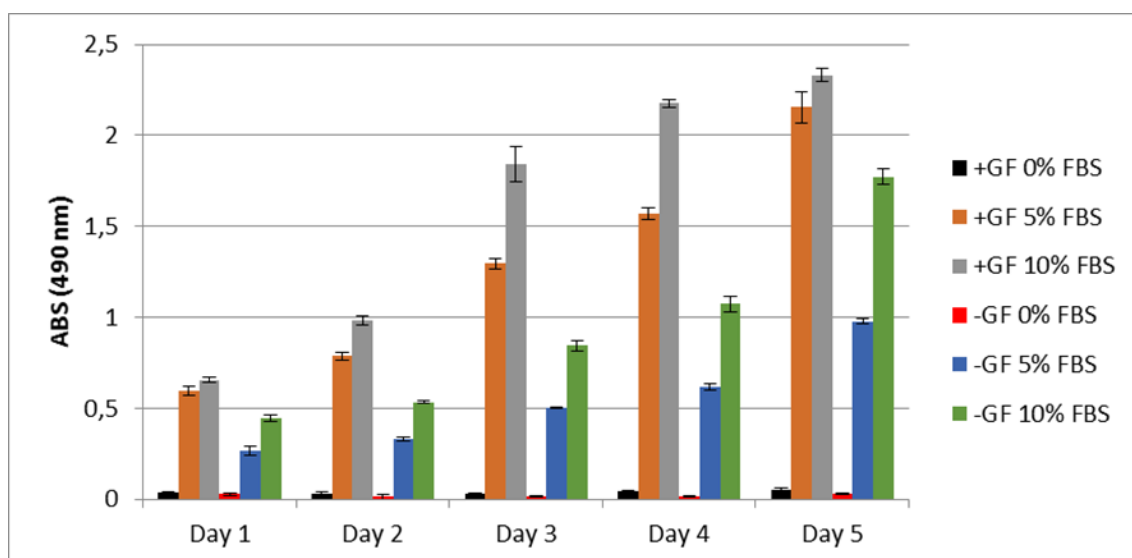


## Supplementary Data

### ***Optimization of 3D autologous chondrocyte-seeded polyglycolic acid scaffolds to mimic human ear cartilage***

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Moya<sup>1</sup>, Francisco José Parri Ferrandis<sup>5</sup>, Carolyn Rogers<sup>6</sup>, Agata Gelabertó<sup>7</sup>,  
Jordi Martorell<sup>4</sup>, Elazer R. Edelman<sup>1,7</sup>, Mercedes Balcells<sup>1</sup>.

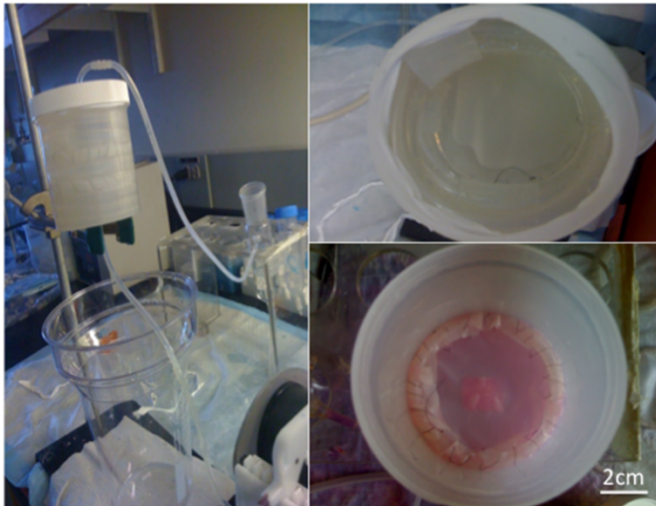
#### Supplementary Figures:



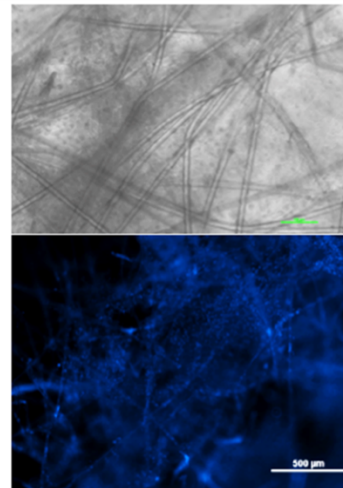
**Figure S1. Effect of culture medium composition on chondrocyte growth.**

Results of the cell growth kinetics using MTS assay obtained from isolated microtia ear chondrocytes grown with specific medium HAM's F12 with or without basic fibroblast growth factor (GF, 10 ng/mL) and different percentages of fetal bovine serum (FBS) for 5 days. \*.  $p < 0.05$  vs. prior condition; #,  $p < 0.05$  vs. condition without GF.

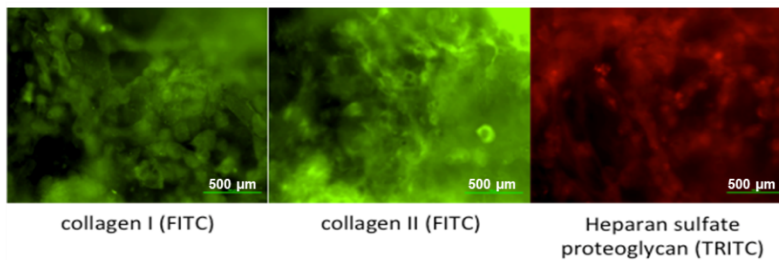
**A** Perfusion system design to expose cell-seeded scaffolds to flow



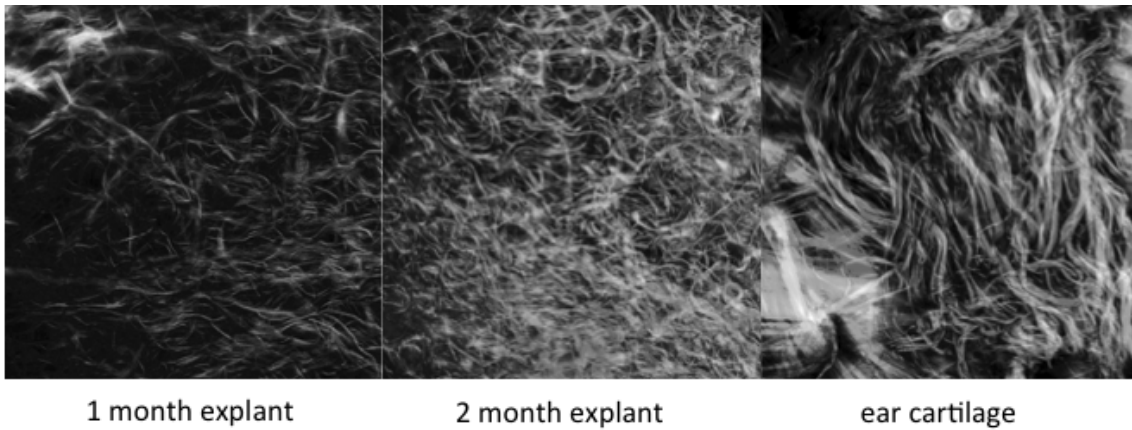
**B**



**C**



**Figure S2. Shear stress effects on biofunctional markers of rabbit cartilage chondrocytes.** (A) New bioreactor perfusion system developed to expose ear rabbit chondrocyte-seeded PGA scaffolds to flow and shear stress (B) Example of PGA scaffold seeded with rabbit chondrocytes in static culture for 3 days. Upper picture shows a bright field image. Lower picture shows DAPI nuclei staining. (C) PGA scaffold seeded with rabbit chondrocytes and exposed to flow 4 mL/minute for 8 weeks. Collagen I and collagen II fluorescent staining is shown in green. Fluorescent staining for Heparan sulfate is shown in red.



**Figure S3. Visualization of collagen structure and alignment in cartilage explants from rabbits implanted with chondrocyte-seeded PGA scaffolds.**

Second harmonic multiphoton microscopy images of collagen distribution and alignment in PGA scaffolds seeded with ear rabbit chondrocytes after 1 and 2 months of subcutaneous implantation in rabbits.