

FIGURE S1: cell viability in static and perfused gels after a 7 days culture period. Living cells are stained in green and dead cells in red. A high level of cell viability was found in static and perfused gels compared to control where cell death was induced by incubating static gels with Diméthylsulfoxyde (DMSO) for 15 min before live/dead assay (scale bars = 500 μm).

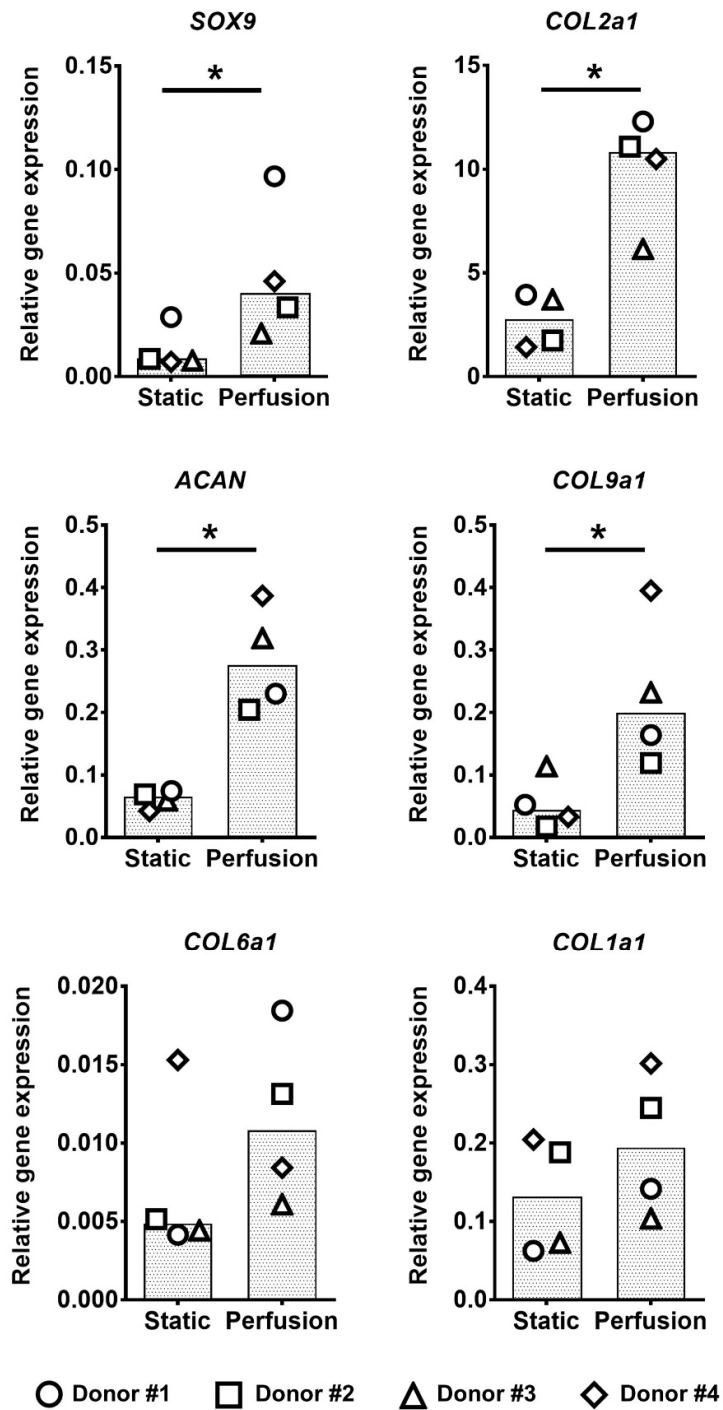


FIGURE S2: Gene expression characterization of human articular chondrocytes cultivated for 21 days in fibrin hydrogel in free swelling (static) or a direct perfusion bioreactor. The chondrocytes were amplified for 2 weeks on plastic in the presence of 10% fetal bovine serum supplemented with FGF-2 and insulin and were then encapsulated in hydrogel and cultivated for 3 weeks in chondrogenic medium containing BMP-2, insulin and T3 in a perfusion bioreactor or cell culture well plate. Results are expressed as relative values normalized with the reference gene ribosomal protein L13a (RPL13a) and quantified by the $\Delta\Delta C_t$ method. Data are presented as box plots with median as a bar ($n = 4$). * indicates statistically significant differences ($P < 0.05$, Mann-Whitney test).

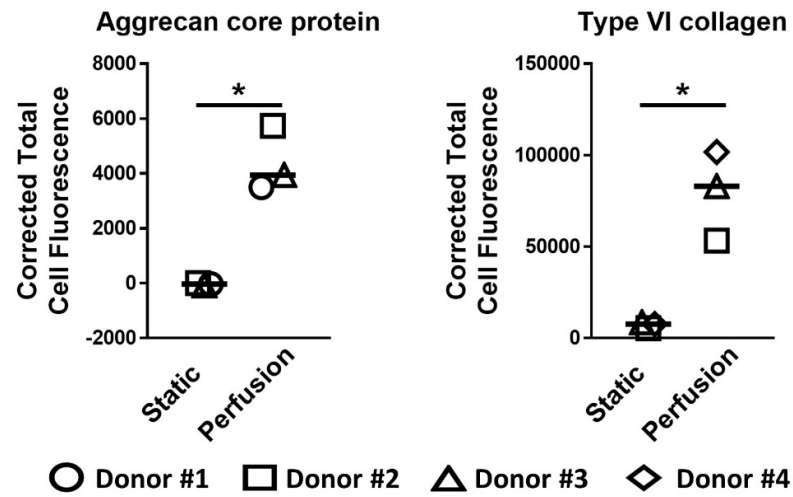


FIGURE S3: Quantification of aggrecan core protein and type VI collagen immunofluorescence at the single-cell level. Integrated fluorescence density was measured around a single cell using ImageJ software and corrected with the area of the selected cell and mean of background fluorescence. Measures were performed on 20-40 cells across tissue sections. * indicates statistical significance ($P < 0.05$, Unpaired t-test).