**Additional file:: supplementary experimental method and sequence of primers for qPCR in human**

**RT-qPCR protocol for samples from human primary OA chondrocytes cultured in alginate beads:** Alginate beads were dissolved using citrate buffer, centrifuged at 200g and the pellet was resuspended in RLT (Qiagen, Hilden, Germany) buffer containing 1% beta-mercaptoethanol for RNA isolation. mRNA isolation was performed according to manufacturer’s protocol utilizing the RNeasy Column system (Qiagen, Hilden, Germany). The RNA concentration was determined using a NanoDrop spectrophotometer (Isogen Life Science, Utrecht, the Netherlands). 0.5 μg RNA was used for cDNA synthesis following the protocol of the manufacturer of the RevertAid First Strand cDNA kit (Thermo Fisher Scientific, Waltham, MA, United States). qPCR was performed on a Bio-Rad CFX96 Real-Time PCR Detection System (Bio-Rad) to assess gene expression, Collagen type 10 (*COL10A1*) and Glyceraldehyde-3-phosphate dehydrogenase (*GAPDH*), which was found stable and therefore used as reference gene. Data were analyzed by the ΔΔCt method and normalized to the expression of *GAPDH* of each condition and compared to the corresponding gene expression in the control groups

**Human oligonucleotides used for qRT-PCR reaction with primary chondrocytes:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Gene** | **Forward primer** | **Reverse primer** | **Probe** |
| *GAPDH* | ATGGGGAAGGTGAAGGTCG | TAAAAGCAGCCCTGGTGACC | CGCCCAATACGACCAAATCCGTTGAC |
| *COL10A1* | CAAGGCACCATCTCCAGGAA | AAAGGGTATTTGTGGCAGCATATT | TCCAGCACGCAGAATCCATCTGA |