Supporting Information

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Microtissue-Based Bioink as a Chondrocyte Microshelter for DLP Bioprinting

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Supplementary Materials

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Figure S1. Osteogenic and adipogenic differentiation of microtia chondrocytes. (A) Alizarin red S staining of microtia chondrocytes 14 days after osteogenic induction (scale bar: 50μm). (B) mRNA expression analysis of osteogenesis-related genes in P1, P2 and P3 microtia chondrocytes (***p<0.01, ****p<0.0001). (C) Oil Red O staining of microtia chondrocytes 21 days after adipogenic induction (Scale bar: 10μm). (D) mRNA expression analysis of adipogenesis-related genes in P1, P2 and P3 microtia chondrocytes (*p<0.05, **p<0.01).
Figure S2. (A) DLP bioprinter, (B) printed model and (C) finished product (scale bar: 10mm).
**Figure S3.** Live/Dead staining images of PEGDA+Chondrocytes and PEGDA+Microtissues at day1 and day10 (scale bar: 100μm).

**Table S1.** Primer sequences used for qRT-PCR

| Gene name                        | Gene symbol | Forward primer (5'-3') | Reverse primer (5'-3') |
|----------------------------------|-------------|------------------------|------------------------|
| Glyceraldehyde-3-phosphate dehydrogenase | GADPH       | TCAAGAAGGTTGGAAGCGG    | TCAAAAGGGAGGAGTGGG    |
| Collagen, type II α 1            | COL2A1      | TCCAGATGACCTTCCTAGCC   | GGTATGTTTCGTGCAAGCCAT|
| Aggrecan                         | Aggrecan    | TGAGGGGCAGCAGTTGGAC    | TGATACAGGAGGCTGGAGG   |
| Elastin                          | Elastin     | ACCTCTTAAGCCAGTTCCCG   | CAGACACTCTAGCCACC     |
| Octamer transcription factor 4   | OCT4A       | CAGCGACTATGCACACAGG    | AGATGGTGACAGGACAGG    |
| Nanog                            | NANOG       | CCACCAGTCCCCAAGGAAACC  | CCCTGGTCACACCATGTATTCT|
| Sex determining region Y-box 2   | SOX2        | CCAGGAGAACCCACAGTACAC  | GACCCCGCTGCACATGCTATT|
| Runx-related family transcription factor 2 | RUNX2 | GCACGGTACAGTGAATT       | GAGCCGTCAGAGAAGAAACTA|
| Alkaline phosphatase             | ALP         | GACAAACTGGGGCTAGATA    | CTGACTTCCTCTTCTTCTG   |
| Osterix                          | OSX         | TCTCTGGACATGCACACACC   | AGGGGAGCAAAGACAGTGG   |
| Bone morphogenetic protein 2     | BMP2        | TGACCAAGAATGACACAGC    | GTGACAGTAAAGGGCTGAT   |
| Osteopontin                      | OPN         | ACTGATTTTCCCACGGACTCT  | CTCTCGTCTTCCATGTGT    |
| Peroxisome proliferator-activated receptor γ | PPARγ | AAGACACTCCCACTCCTC    | ATCTCCACAGACACGACA    |
| CCAAT enhancer binding proteins α | CEBPa       | TGCCGGGAGAATCTAATCTC   | TCGATGATTAGGCGCTGTG   |
| Retinoid X receptor α            | RXRa        | CTGCATCTCCATCAGCAC     | CTGACGGGGCTGTAAGTGTA  |
| Lipoprteinlipase                 | LPL         | GAGACTTGAGATGAGGACC    | TGCTGGCTCTTCTTGCTTG   |
| Adipsin                          | Adipsin     | TGGGGCATAGTCAACCAGC    | AGTCACCTCTGAGCCTG    |