

Supplementary data

Biomimetic open porous structured core-shell microtissue with superior mechanical properties for bottom-up bone tissue engineering

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Table S1. Explanation of samples tested in the experiment.

Sample	Explanation
Core-shell micro-scaffold	Microgel fabricated by DBM-gelatin mixture
Core-shell microtissue	Cell-material composite of seeded BMSCs and core-shell micro-scaffold
Gelatin micro-scaffold	Microgel fabricated by simple gelatin solution
Gelatin microtissue	Cell-material composite of seeded BMSCs and gelatin micro-scaffold

Table S2. Primers sequences used in qRT-PCR.

Gene	Primer sequence
R- β actin-F	5'- TGCTATGTTGCCCTAGACTTCG-3'
R- β actin-R	3'- GTTGGCATAGAGGTCTTTACGG-5'
R-OCN-F	5'- CATCTATGGCACCACCGTTTA-3'
F-OCN-R	3'- CATCTATGGCACCACCGTTTA-5'
R-Runx2-F	5'- CAGTATGAGAGTAGGTGTCCCGC-3'
F-Runx2-R	3'- AAGAGGGGTAAGACTGGTCATAGG-5'
R-BMP-2-F	5'- AACACCGTGCTCAGCTTCCAT-3'
F-BMP-2-R	3'- GAAGAAGAAGCGTCGGGAAGT-5'
R-Smad1-F	5'- GACTGCCTCATGTCATTTATTGC-3'
F-Smad1-R	3'- CGCTTATAGTGGTAGGGATTGATG-5'

F: Forward; R: Reverse.

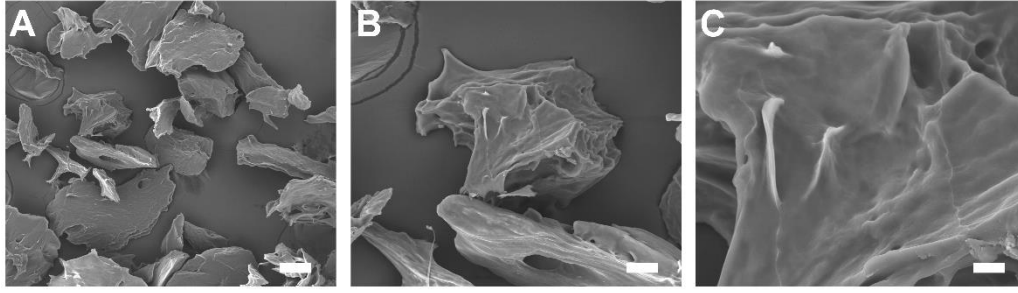


Figure S1 SEM images of DBM particles. (Scale bars in A: 125 μm , scale bars in B: 50 μm , scale bars in C: 12.5 μm)

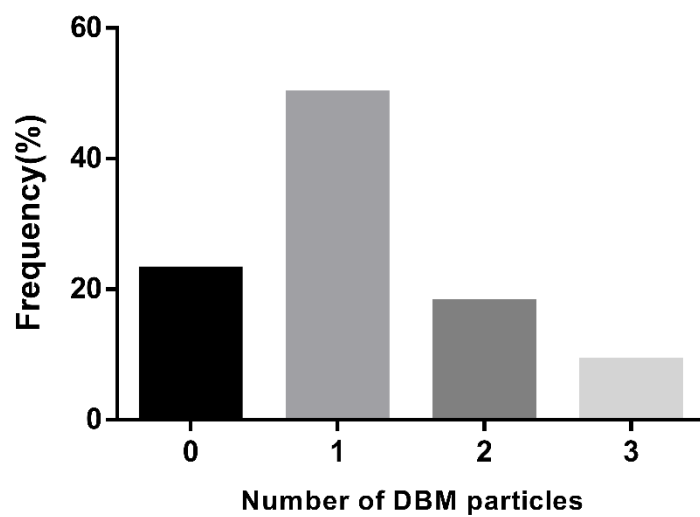


Figure S2 Number of DBM particles in each core-shell micro-scaffolds was counted. Approximately 50% core-shell micro-scaffolds have only one DBM particle as the core.

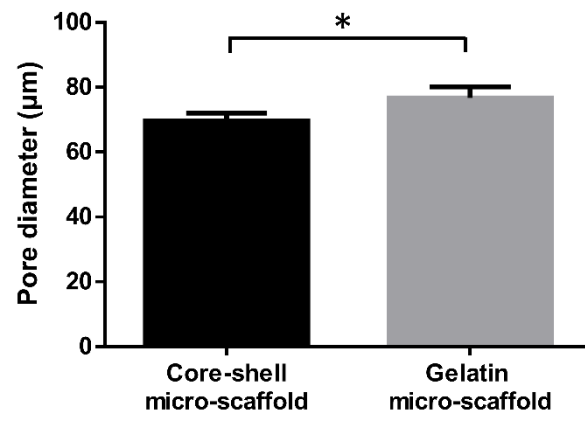


Figure S3 Pore diameter of core-shell micro-scaffold and gelatin micro-scaffold. (*: p<0.05)

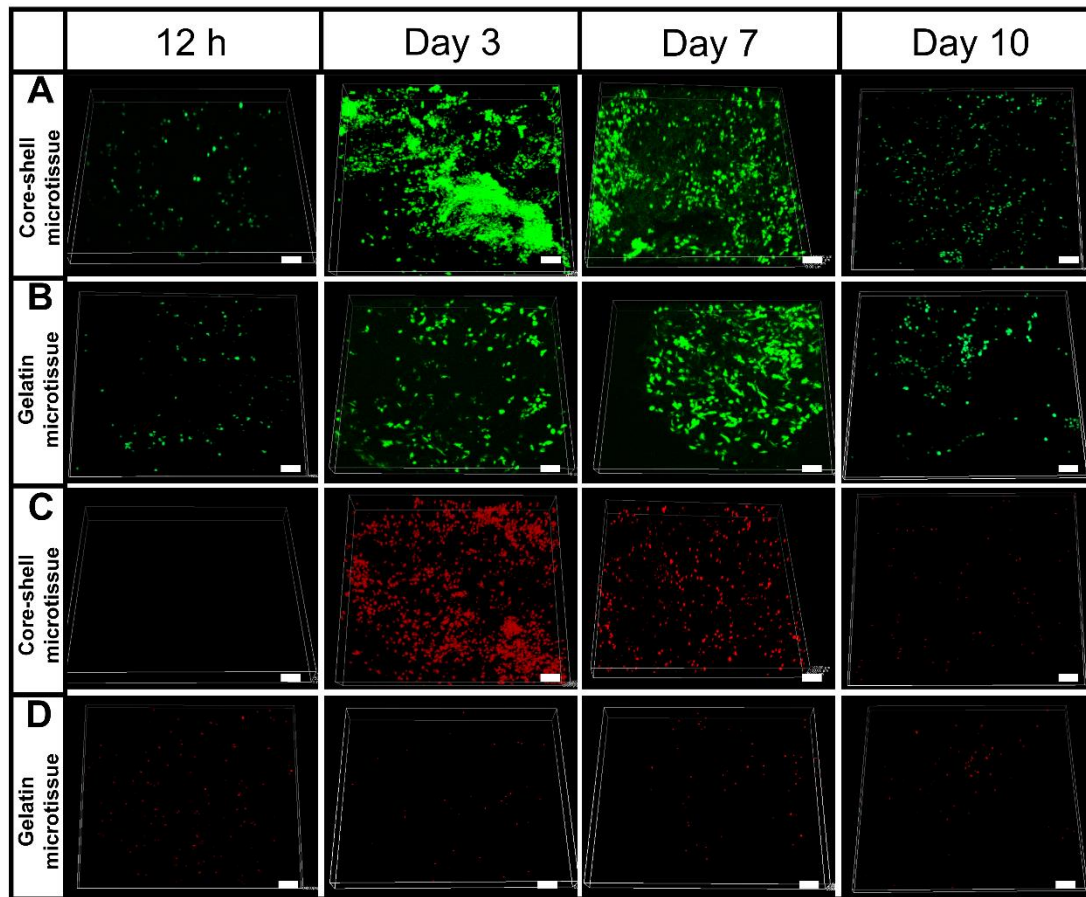


Figure S4 Confocal images of FDA staining and PI staining. (A, B) Confocal images of FDA staining of core-shell microtissue and gelatin microtissue, wherein green fluorescence indicated cytoplasm of live cells. (C, D) Confocal images of PI staining of core-shell microtissue and gelatin microtissue, wherein red fluorescence indicated nucleus of dead cells. (Scale bars: 150 μm)