ACCSCIENCE PUBLISHING

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RESEARCH ARTICLE

Dual-nozzle three-dimensional-printed calcium sulfate/polylactic acid scaffold with linezolid microspheres for efficient repair of femoral condyle defects in rats

Supplementary file

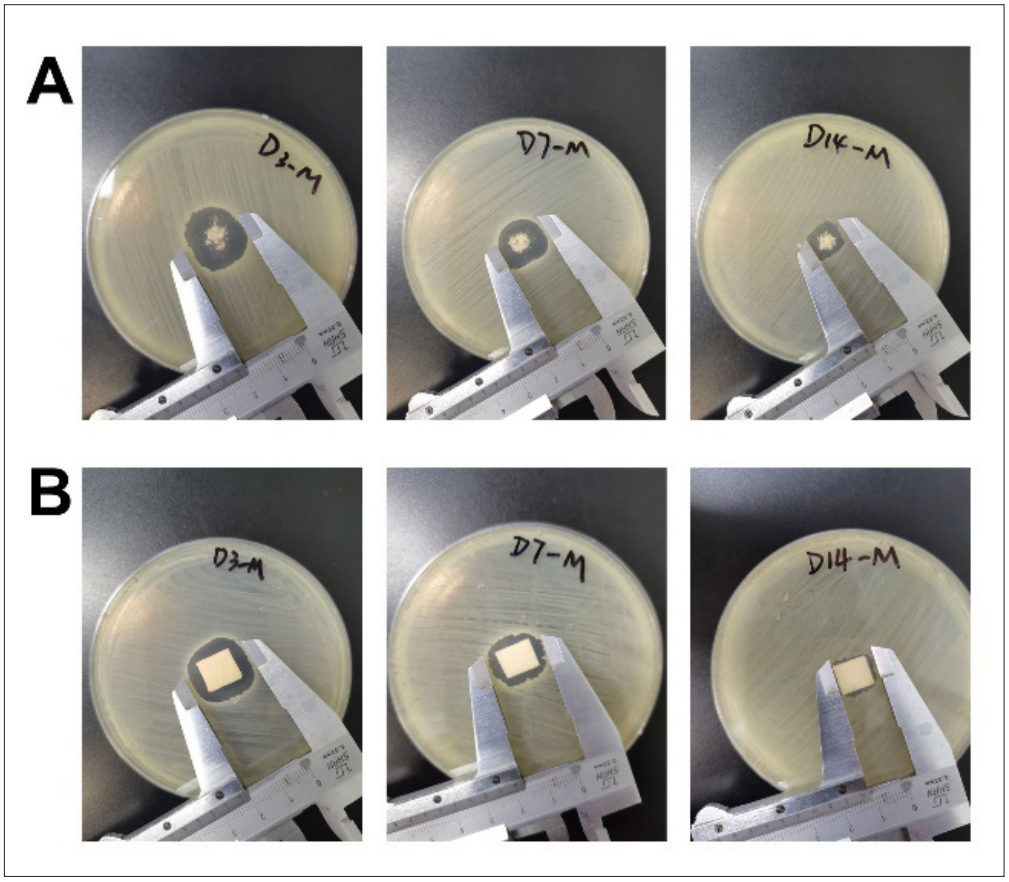

Figure S1. Antibacterial properties of LMS and CS/PLA-LMS groups at 3, 7, and 14 days, respectively. Antibacterial properties of LMS and CS/PLA-LMS groups at 3, 7, and 14 days, respectively. (A) Antibacterial test of LMS at Days 3, 7, and 14, showing the inhibition zones in the bacterial culture. .(B) Antibacterial test of CS/PLA-LMS at Days 3, 7, and 14, illustrating the inhibition zones and demonstrating the sustained antibacterial effect over time. Abbreviations: CS, calcium sulfate; LMS, linezolid-loaded microsphere; PLA, polylactic acid.

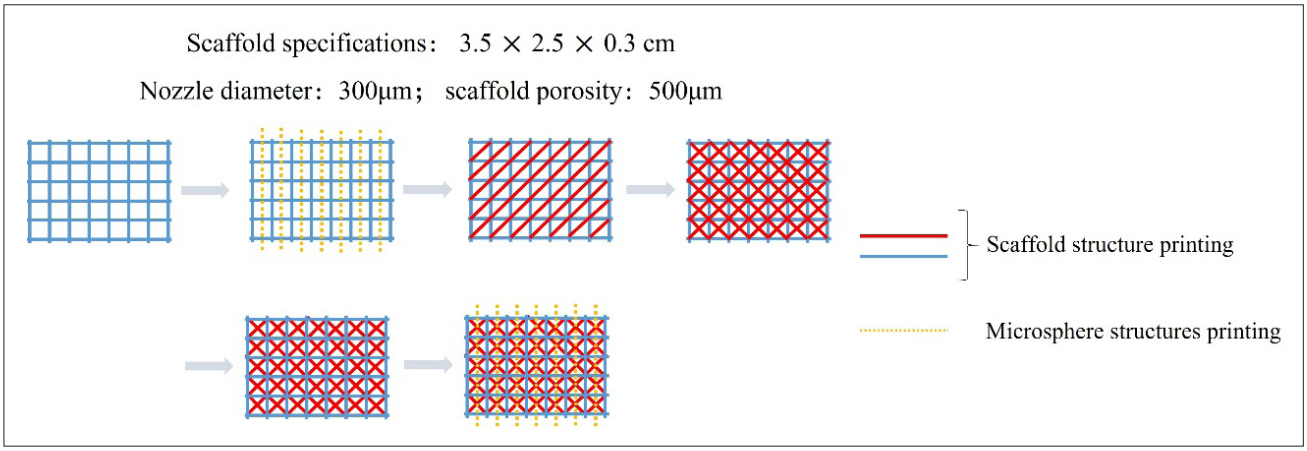

Figure S2. Mode diagram of double-nozzle three-dimensional-printed composite scaffolds.

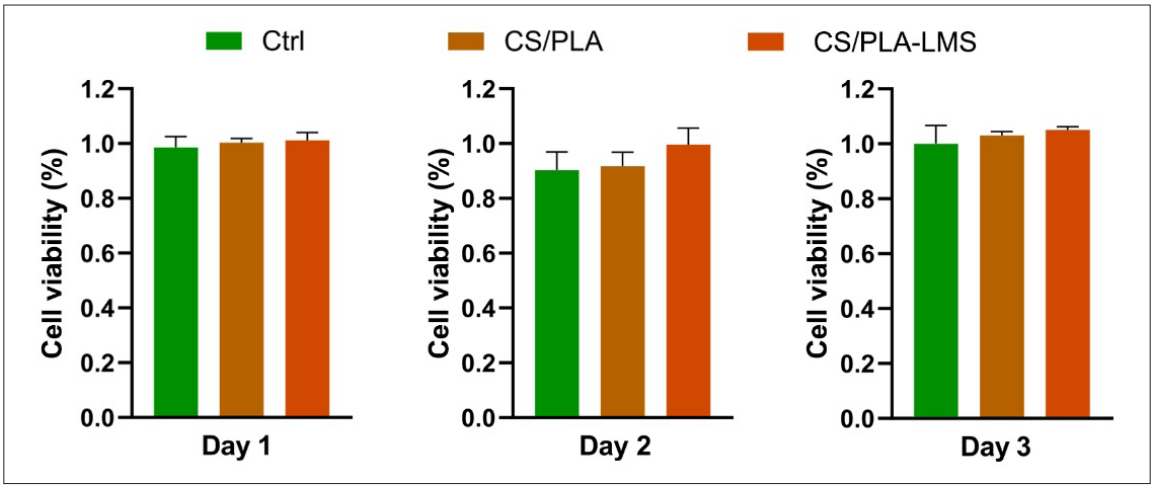

Figure S3. Cell viability of BMSCs cultured with different scaffold extracts at Day 1, Day 2, and Day 3, showing no significant differences in cell viability between the groups (Ctrl, CS/PLA, and CS/PLA-LMS). Abbreviations: BMSC, bone marrow stromal cell; CS, calcium sulfate; Ctrl, control; LMS, linezolid-loaded microsphere; PLA, polylactic acid.

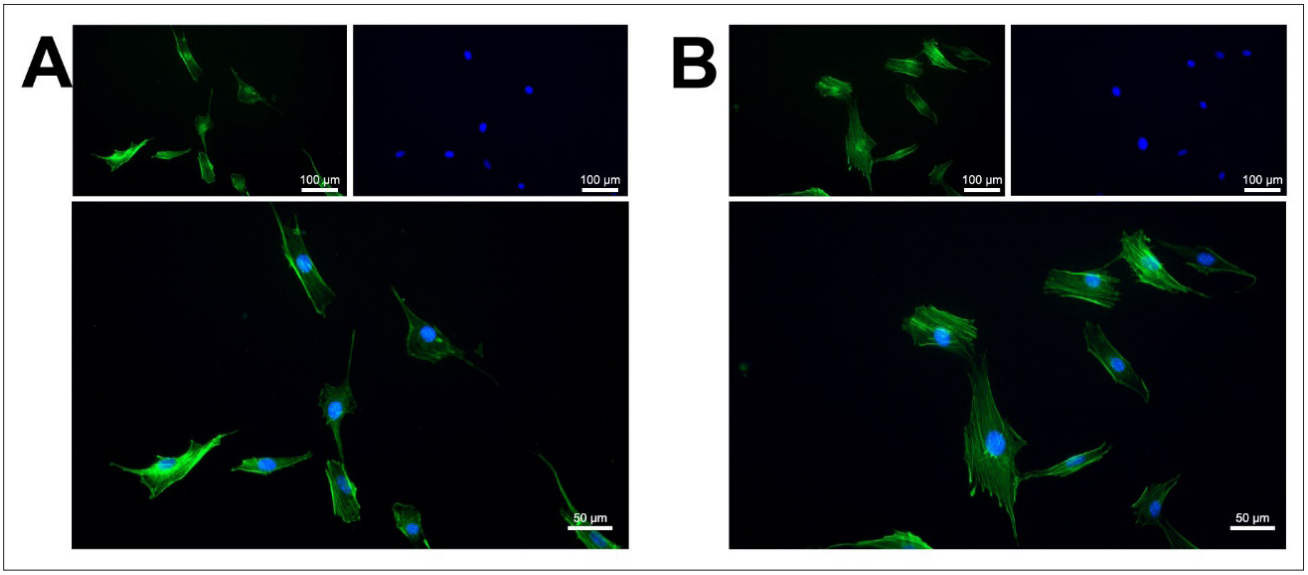

Figure S4. Ghost peptide-cytoskeleton staining of the (A) CS/PLA and (B) CS/PLA-LMS scaffolds. Cell morphology has not been changed, indicating good biocompatibility of the complex scaffold. Scale bar: 50 μm, and 100 μm.

Figure S5. Establishment of a bone defect model in the lateral condyle of the femur of Sprague–Dawley rats and scaffold implantation.

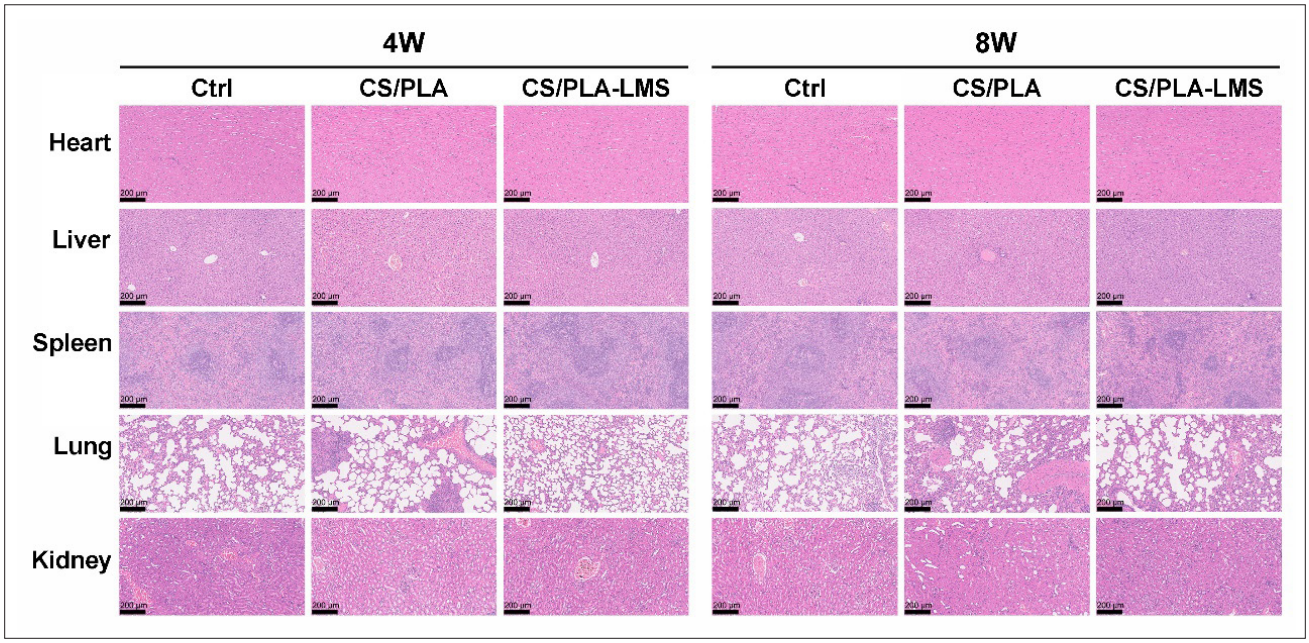

Figure S6. *In vivo* safety assessment in animals. Scale bar: 200 μm. Abbreviations: CS, calcium sulfate; Ctrl, control; LMS, linezolid-loaded microsphere; PLA, polylactic acid.

Table S1. Primer sequences used

Primer	Sequence
Runx2 forward	5'-TTTAGGGCGCATTCCTCATC-3'
Runx2 reverse	5'-GGACTTGGTGCAGAGTTCA-3'
Ocn forward	5'-GGACCCTCTCTCTGCTCACTCTG-3'
Ocn reverse	5'-ACCTTACTGCCCTCCTGCTTGG-3'
Col1a1 forward	5'-CGAGTCACACCGGAACTTGG-3'
Col1a1 reverse	5'-CCAATGTCCAAGGGAGCCAC-3'
Alp forward	5'-TCGGACCCTGCCTTACCA-3'
Alp reverse	5'-TGTCTCCTCGCCCGTGTT-3'
Ctnnb1 forward	5'-ACAAGCCACAGGACTACAAGAAACG-3'
Ctnnb1 reverse	5'-TCAGCAGTCTCATTCCAAGCCATTG-3'