

1 Supplementary Materials for

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3 **Dual-function hydrogel microspheres coordinate immune regulation and osteogenesis coupling to**
4 **promote femoral regeneration**

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6 Lingjun Wang *et al.*

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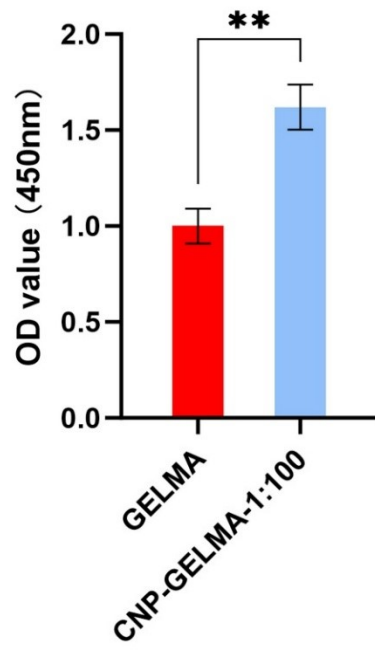
8 Lingjun Wang^{1†}, Zhengxia Ni^{1†}, Yiyang Huang^{1,2†}, Jiannan Mao^{3†}, Jie Wu¹, Wei
9 Wang¹, Xinzhao Jiang¹, Liang Zhou¹, Jincheng Tang¹, Kun Xi^{1*}, Yong Gu^{1*}, Liang Chen^{1*}

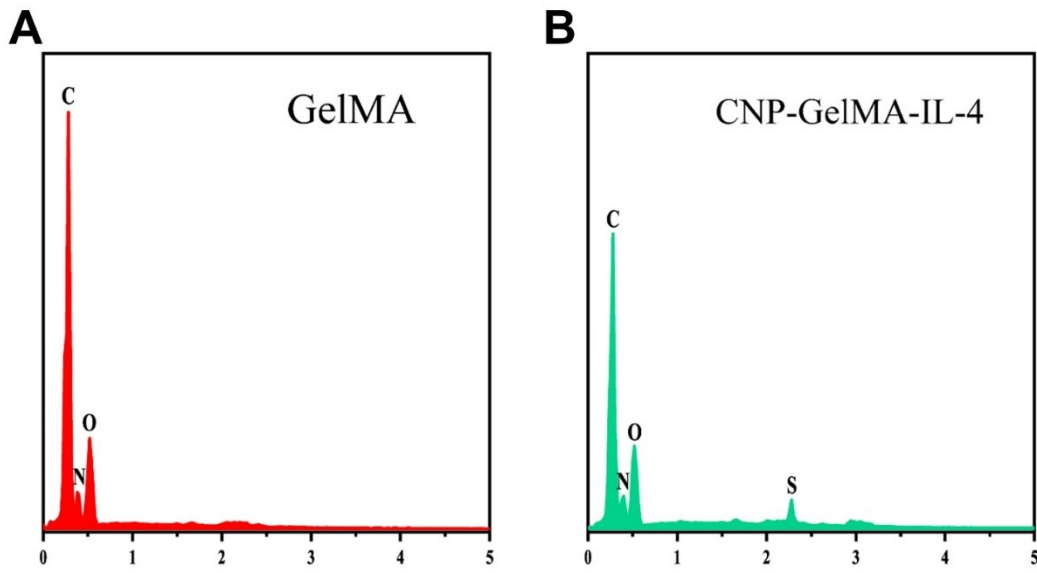
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11 **This file includes:**

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13 Figures. S1 to S8

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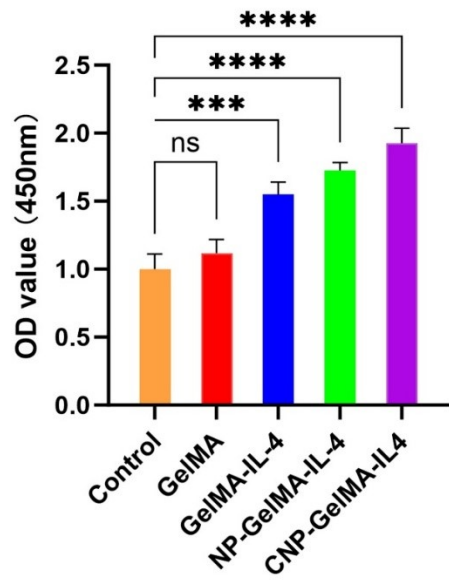


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19 **Fig. S2. EDS analysis of empty carrier (A) GelMA and (B) CNP-GelMA-IL-4 synergistic dual-function**
20 **microspheres.**

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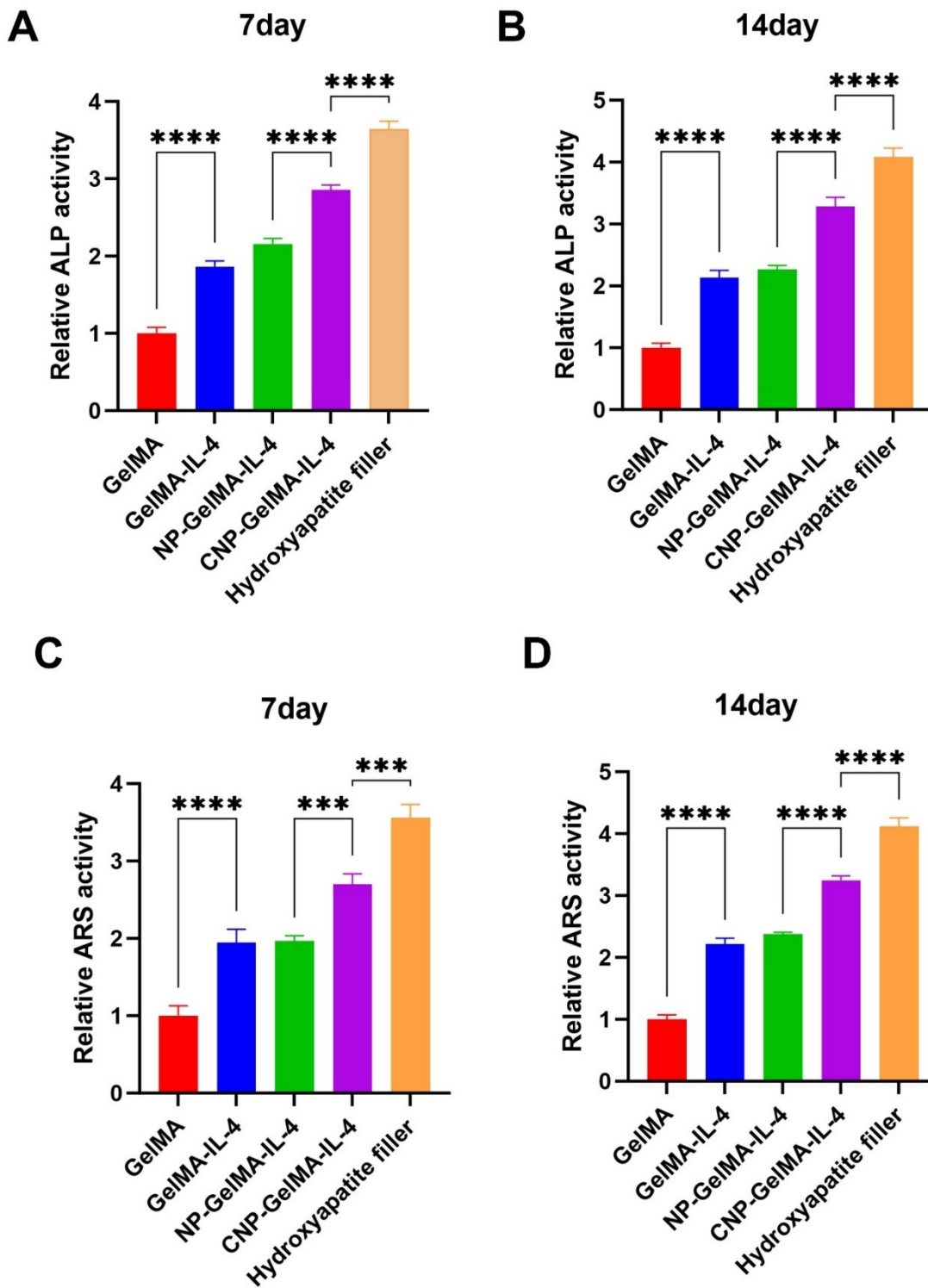
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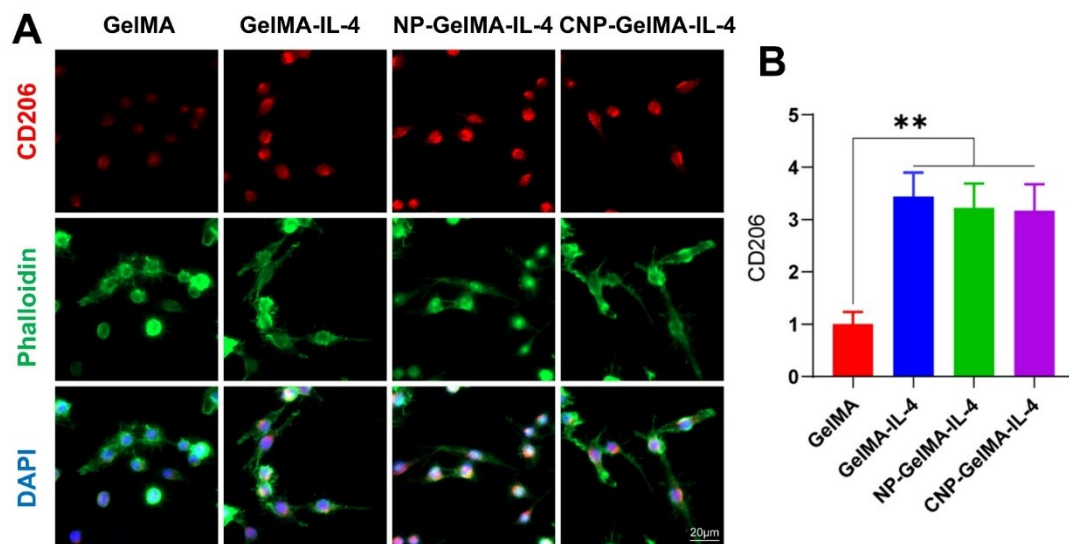
23 **Fig. S3. CCK-8 assay results for cell proliferation.**

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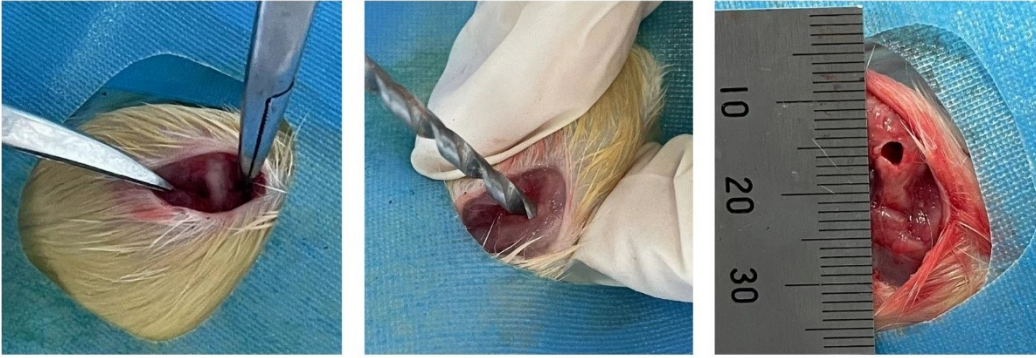
26 Fig. S4. Semi-quantitative analysis of ALP activity at day 7 (A) and day 14 (B); Semi-quantitative
 27 analysis of calcium nodule formation assessed by ARS staining at day 7 (C) and day 14 (D).



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30 Fig.S5. (A) Macrophage CD206 Immunofluorescence Staining Image; (B) Macrophage CD206
31 Immunofluorescence Semi-Quantitative Analysis.

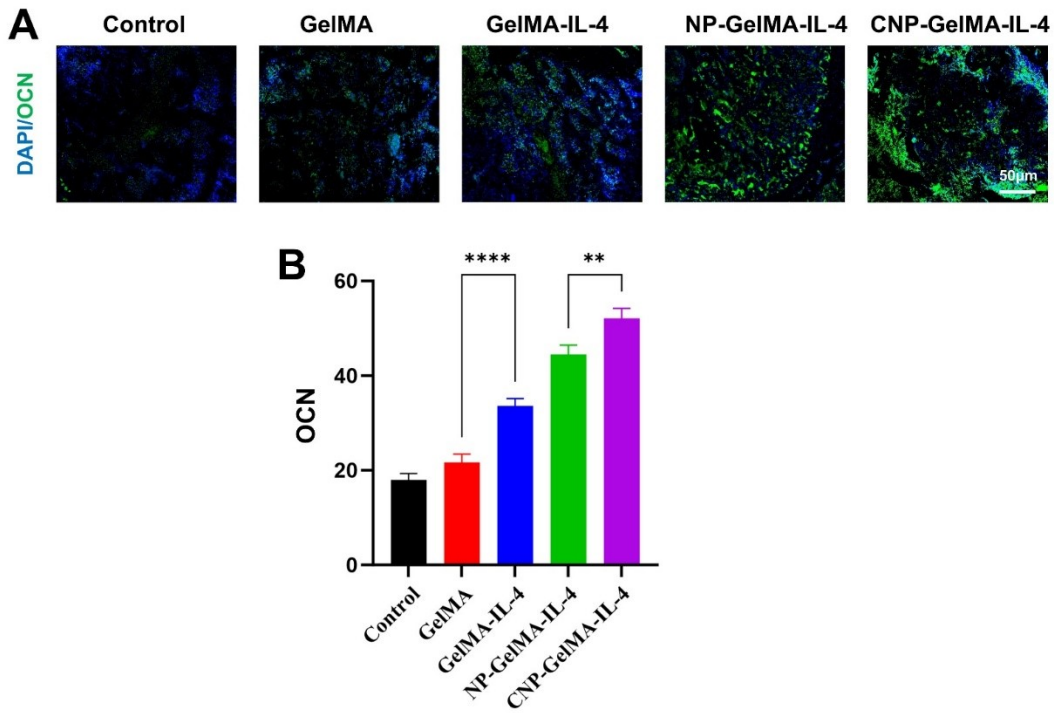
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33 **Fig. S6. Schematic Diagram of the Establishment of a Femoral Condyle Defect Model**

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37 **Fig. S7. (A)**OCN Immunofluorescence findings in femoral condyle specimens from different groups;

38 **(B)** Semi-quantitative OCN Immunofluorescence findings in vivo.

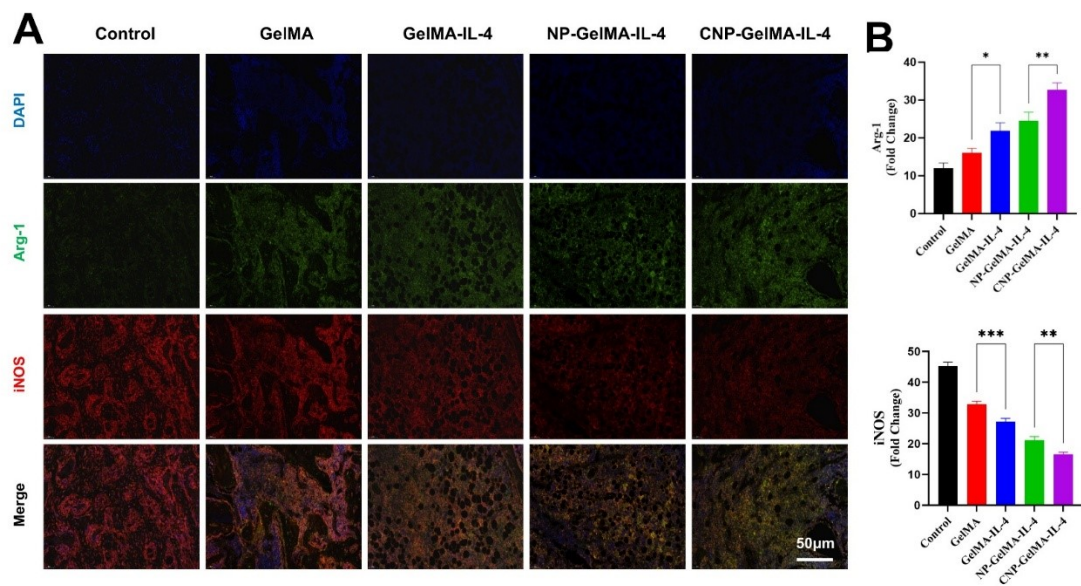


Fig. S8. (A) Polarised histochemical immunofluorescence staining results for Arg-1 and iNOS markers; **(B)** Semi-quantitative results of Arg-1 and iNOS immunofluorescence