ACCSCIENCE PUBLISHING

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RESEARCH ARTICLE

Evaluation of 3D-bioprinted skin scaffolds in mice along with gold nanoparticle exposure

Supplementary File

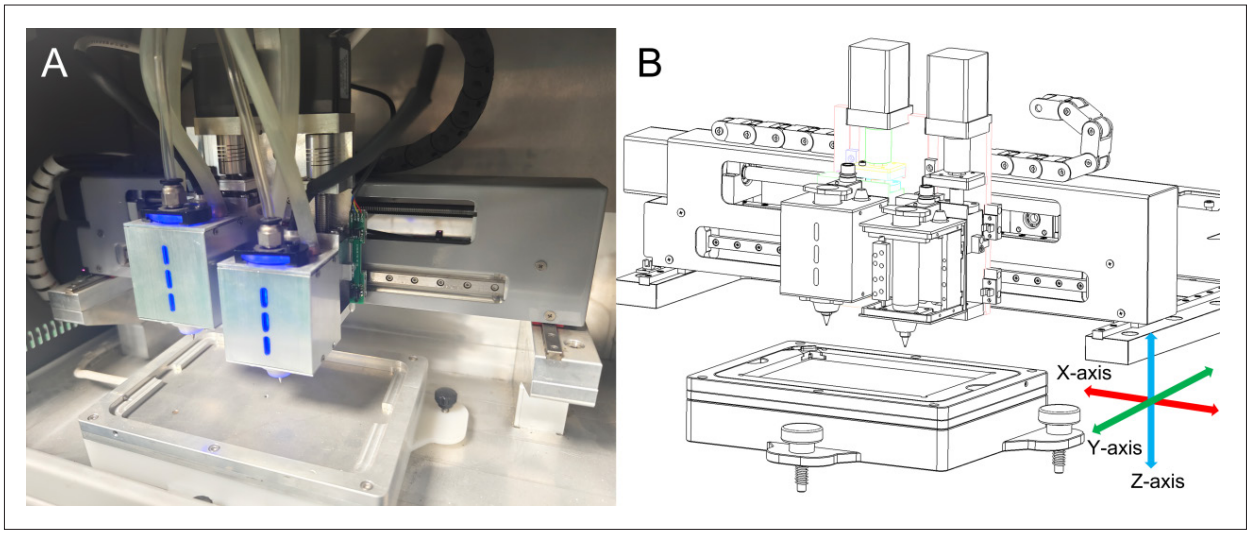

Figure S1. The robotic 3D bioprinting system: (A) the 3D bioprinter used in the experiment, and (B) its schematic diagram. Two dispensers are introduced to extrude cell-laden collagen. Each dispenser operates along three axes (*X*, *Y*, *Z*).

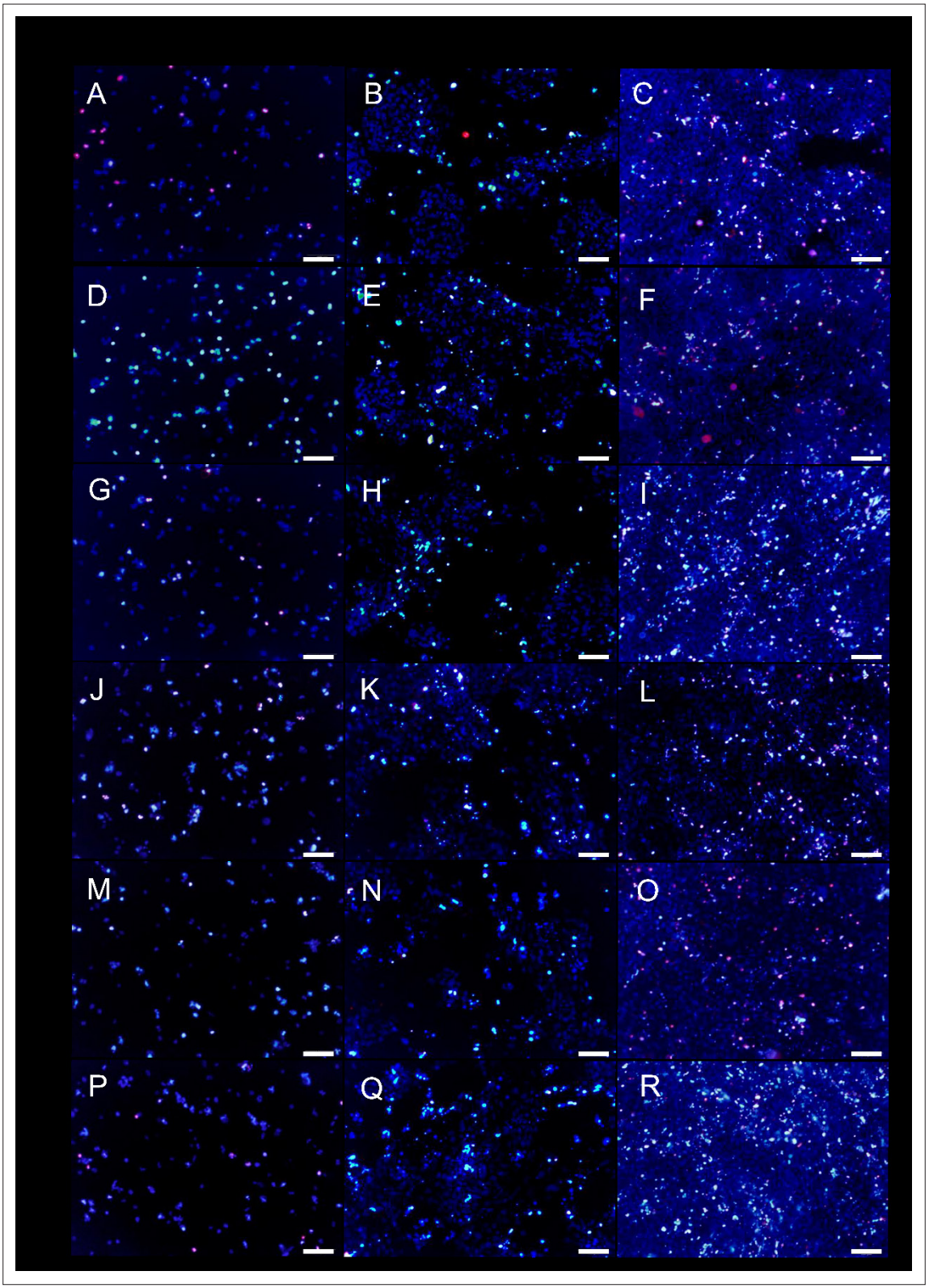

Figure S2. Cell viability of human epidermal keratinocytes (HEKs) evaluated with serial internal needle diameters via Hoechst 33342 and propidium iodide staining at days 1, 4, and 7. HEKs were directly cultivated *in vitro* (A–C) and printed with a serial internal needle diameter (D–F: 0.2 mm, G–I: 0.25 mm, J–L: 0.3 mm, M–O: 0.35 mm, P–R: 0.4 mm). Scale bars: 100 μm. Abbreviation: con: , Controlcontrol.

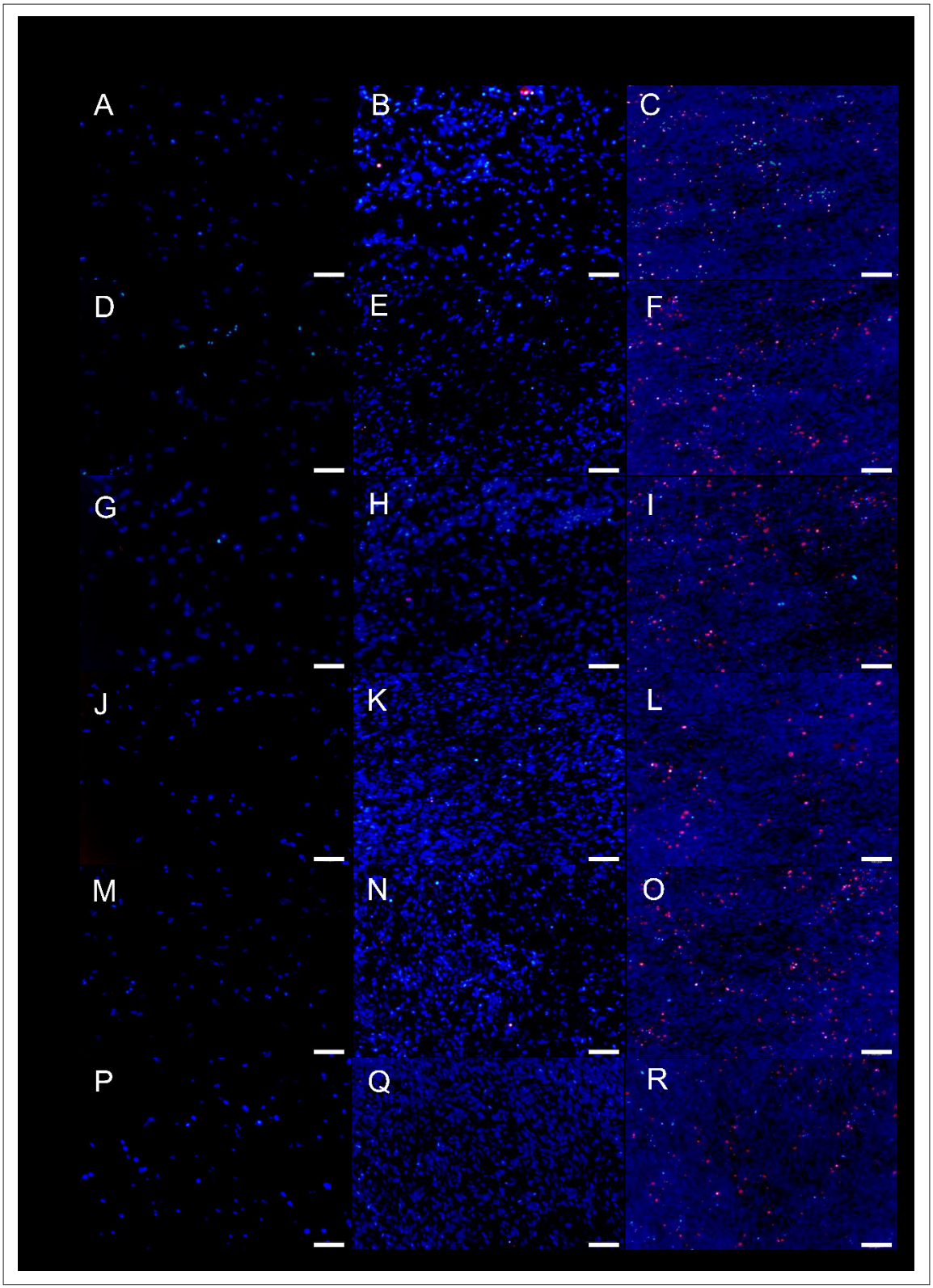

Figure S3. Cell viability of human dermal fibroblasts (HDFs) evaluated with serial internal needle diameters via Hoechst 33342 and propidium iodide staining at days 1, 4, and 7. HDFs were directly cultivated *in vitro* (A–C) and were printed with a serial internal diameter of needles (D–F: 0.2 mm, G–I: 0.25 mm, J–L: 0.3 mm, M–O: 0.35 mm, P–R: 0.4 mm). Scale bars: 100 μm. Abbreviation: con: , Controlcontrol.

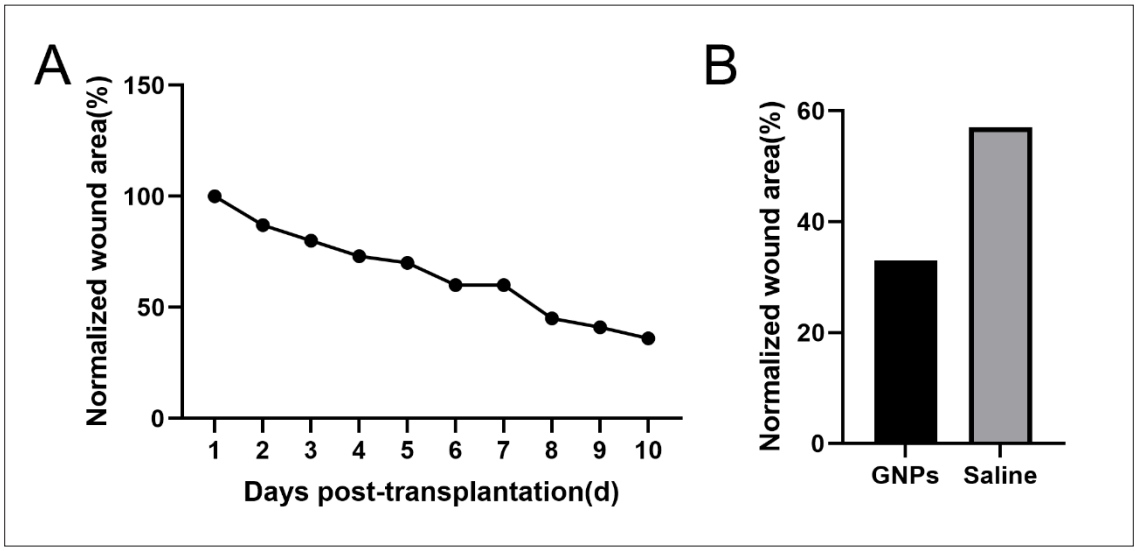

Figure S4. The wound healing process after transplantation. (A) Examination of the wound area post-transplantation (from day 1 to 10). (B) Quantitative analysis of the wound injected with gold nanoparticles (GNPs) and saline on Day 11 post-transplantation. The data wereas normalized based on the size of the initial wound.

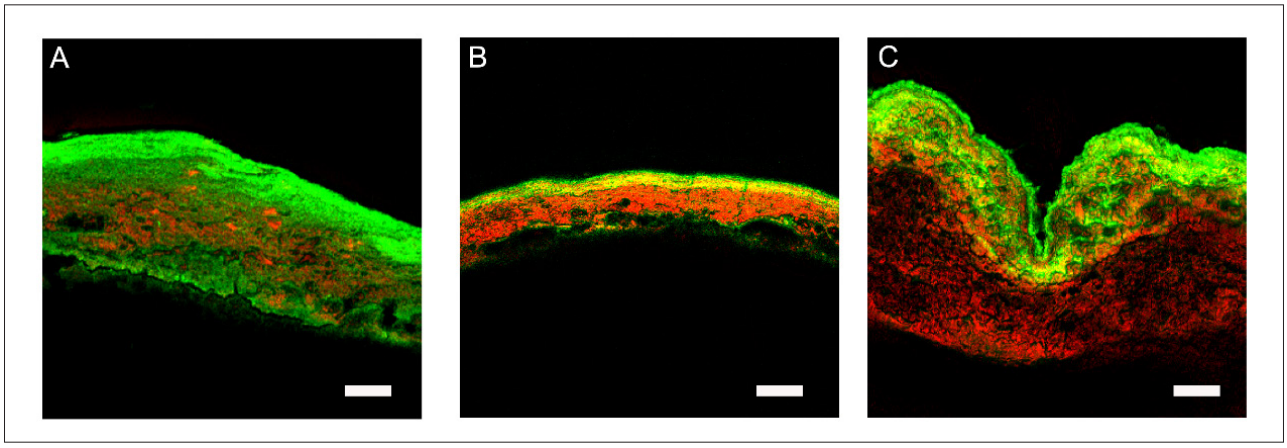

Figure S5. Fluorescence imaging of the bioprinted scaffolds *in vivo*. Collagen (A) and bioprinted scaffolds (B and C) were transplanted to the dorsal back of the nude mice. The images were taken on days 2 (A and B) and 5 (C) after transplantation. The GFP-HEKs exhibited green fluorescence, while the RFP-HDFs appeared in red. Scale bars: 50 μm.