Supplementary material

A biocompatible vascularized graphene oxide (GO)-collagen chamber with osteoinductive and anti-fibrosis effects promotes bone regeneration in vivo

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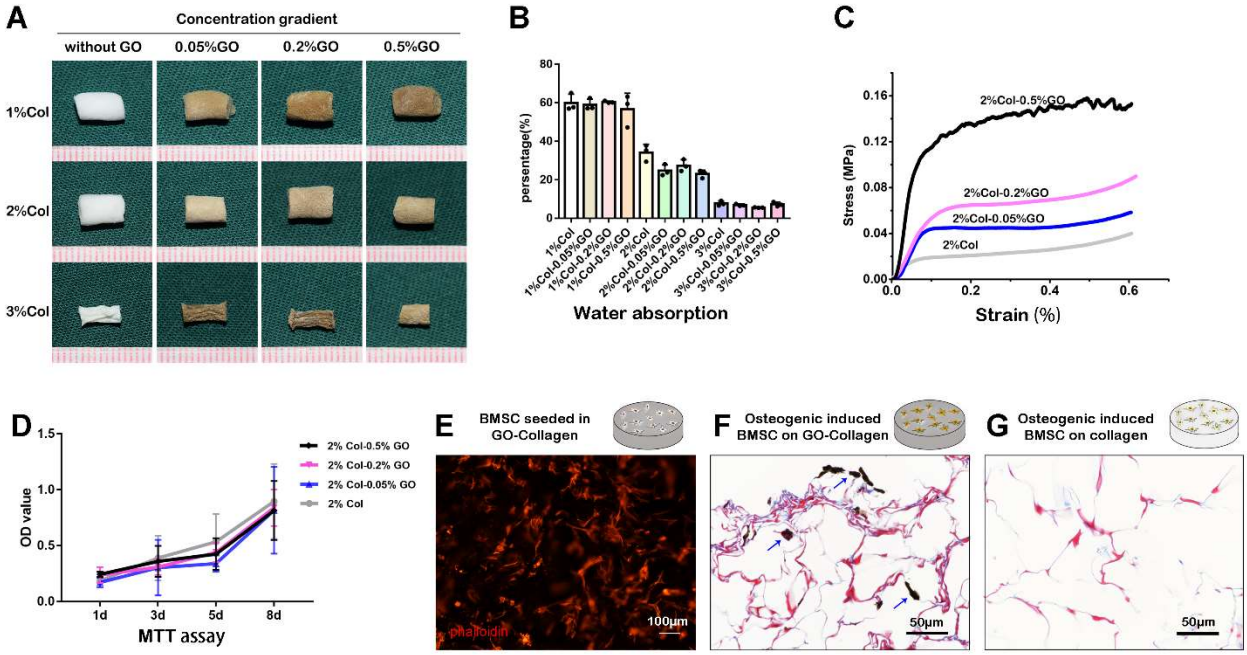

Figure S 1: GO-collagen displayed good mechanical properties and biocompatibility at optimal concentration of GO and collagen.

Different concentrations of GO and collagen composite materials were synthesized, and materials with 2% collagen displayed better plasticity (A). Water absorption and dynamic compression tests showed that the concentration of collagen and GO influenced the water absorption and stiffness, respectively (B-C). Rat BMSC were seeded on GO-collagen, and the biocompatibility of these materials were tested by MTT assay (D) and cytoskeleton staining (E). The Von Kossa staining showed that more BMSCs osteogenic differentiated in GO-collagen scaffold (F) than in the collagen material (G).

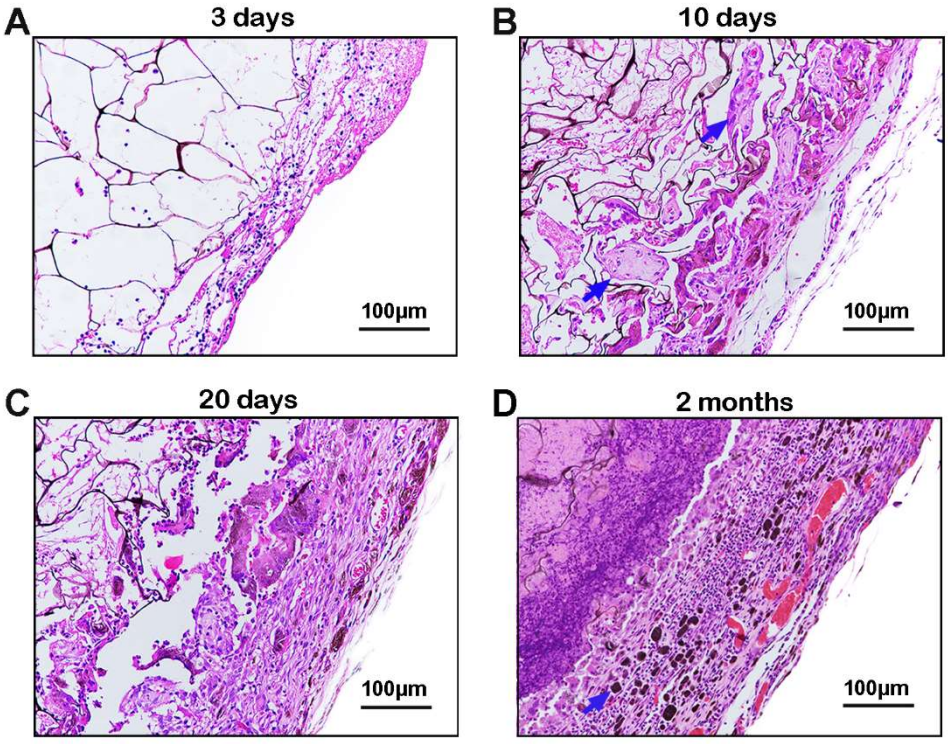

Figure S 2: Degradation of GO-collagen chamber in vivo.

Hematoxylin-Eosin staining was performed at different time-points and the results indicated that the GO-collagen was continuously degraded by macrophages (blue arrow) (A-D).

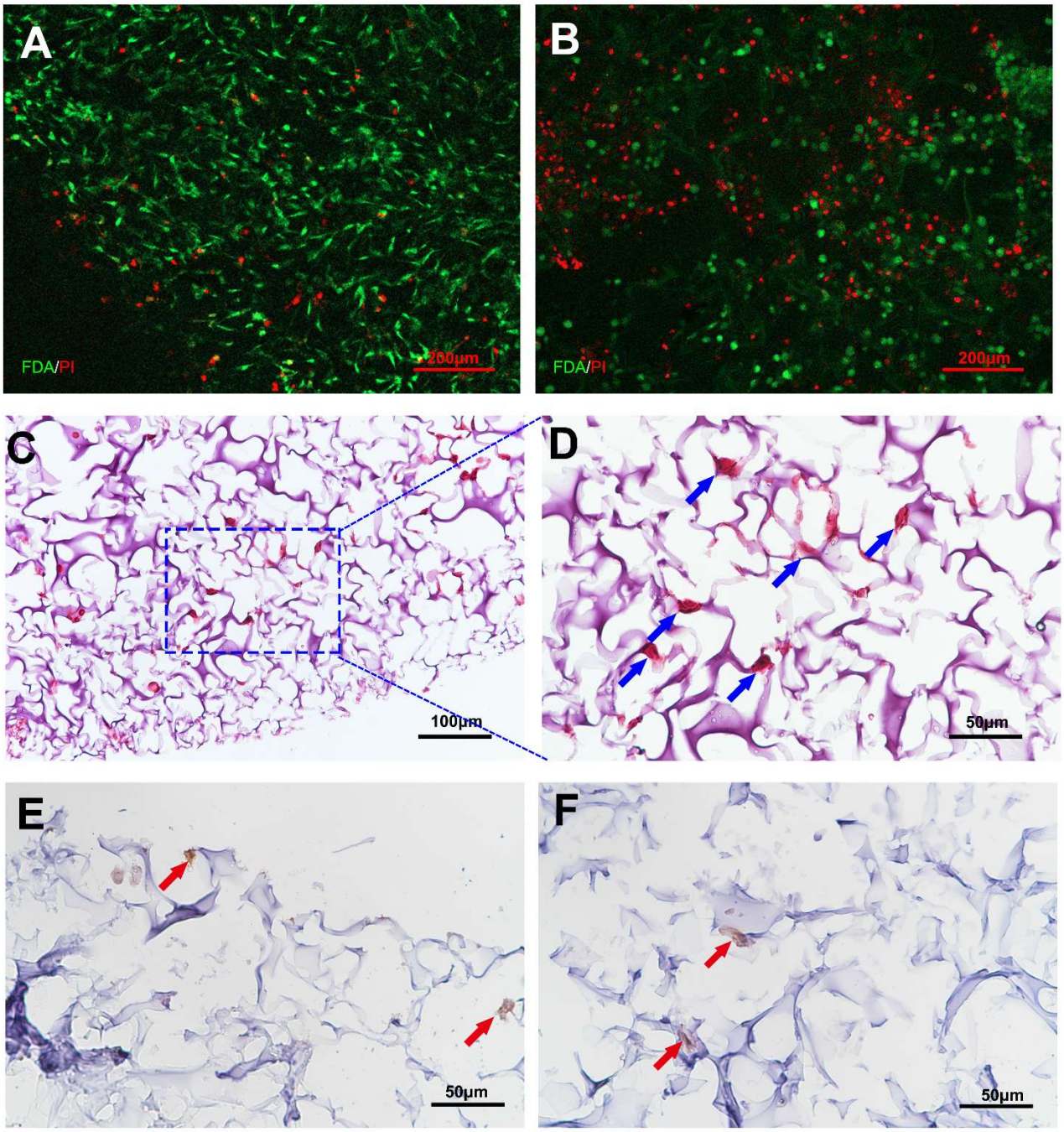

Figure S 3: The osteogenesis process of BMSCs.

BMSCs in gelatin scaffolds were stained with FDA/PI to confirm that the cells had successfully adhered to gelatin scaffolds (A, B). After a 21-days osteogenic induction, Alizarin red staining (C, D) and osteocalcin (OCN) immunohistochemistry staining (E, F) were conducted to confirm the osteogenic differentiation of BMSCs.