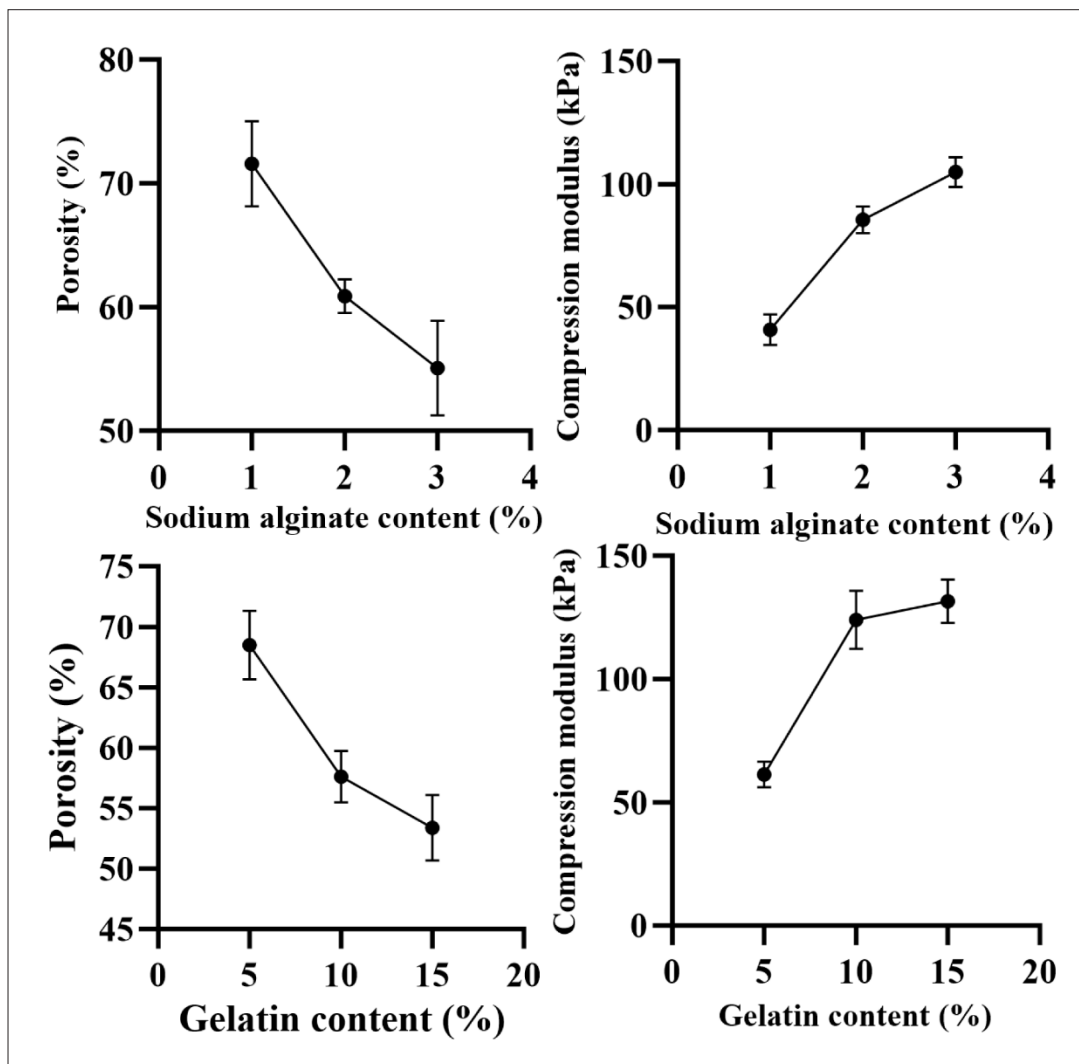


RESEARCH ARTICLE

Three-dimensional-printed bionic dual crosslinked drug-loaded hydrogel composite scaffolds for large bone defect repair

Supplementary file



**Figure S1.** Mechanical properties and porosity of the hydrogels. (A) Porosity of hydrogels with different sodium alginate contents. (B) Compression modulus of hydrogels with different sodium alginate contents. (C) Porosity of hydrogels with different gelatin contents. (D) Compression modulus of hydrogels with different gelatin contents.

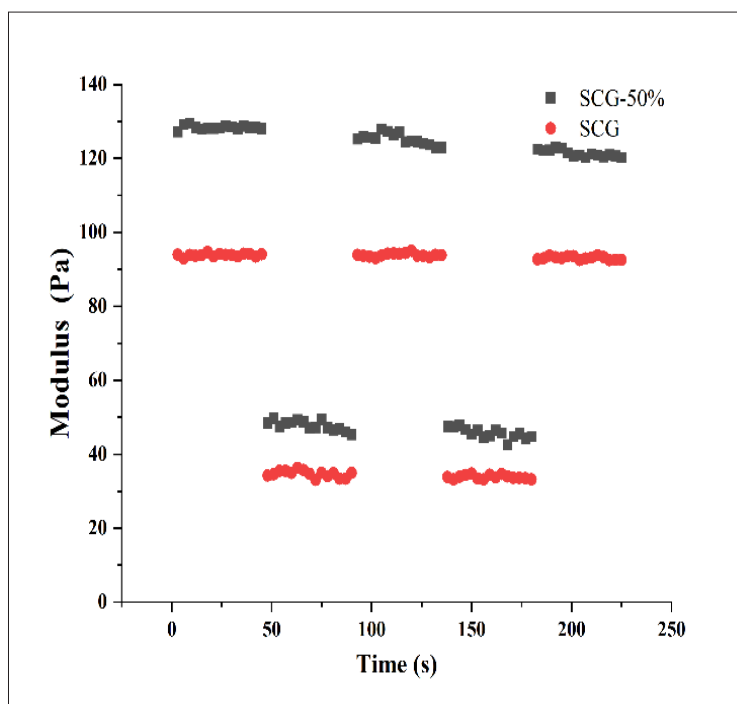


Figure S2. The rheological properties of SCG and SCG-50% printing ink.

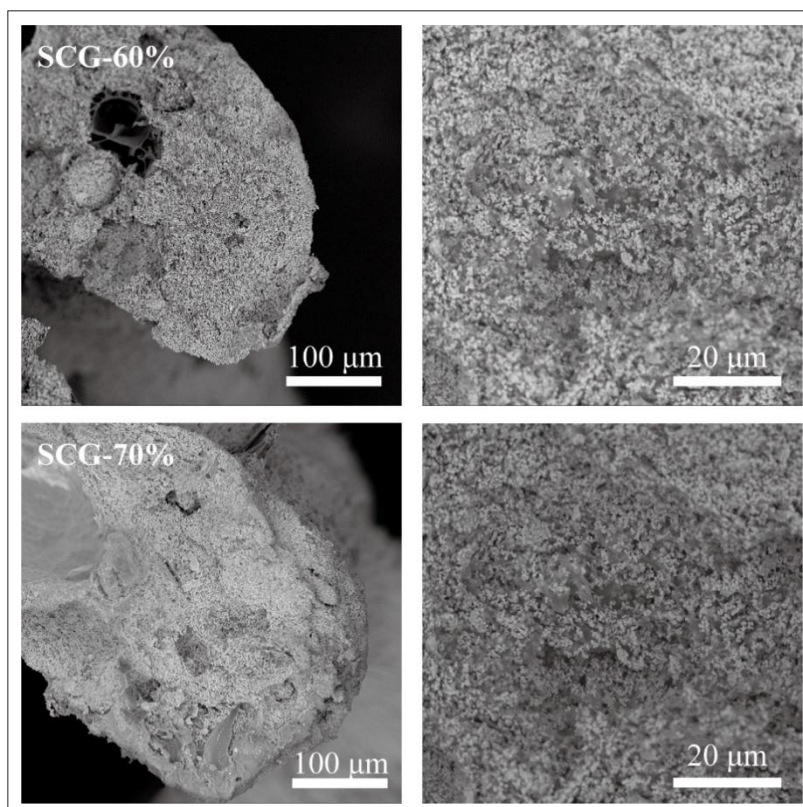


Figure S3. Cross-sectional micromorphology of scaffolds with higher  $\beta$ -tricalcium phosphate content (60% & 70%). Scale bars: 20  $\mu$ m, 100  $\mu$ m; magnifications: 20 $\times$ .

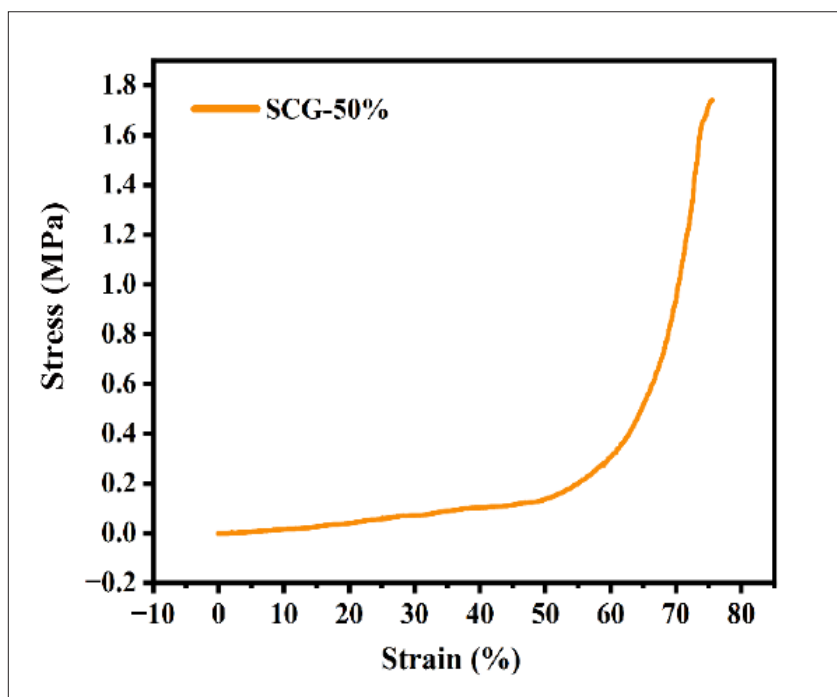


Figure S4. The stress-strain curve of the SCG-50% scaffold.

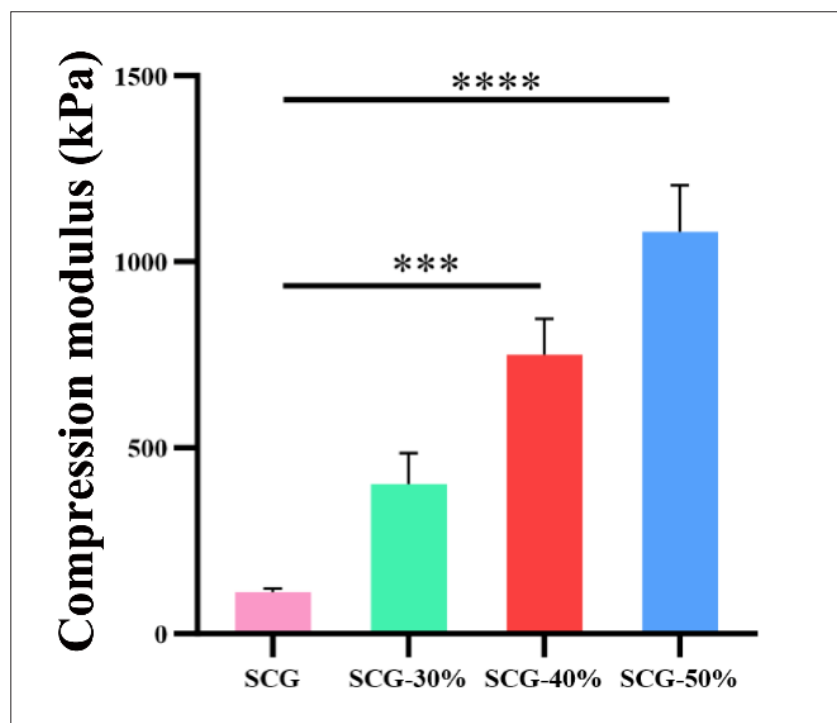


Figure S5. Compression test of the scaffolds in a humid environment. Statistical significance determined at  $***p < 0.001$  and  $****p < 0.0001$ .

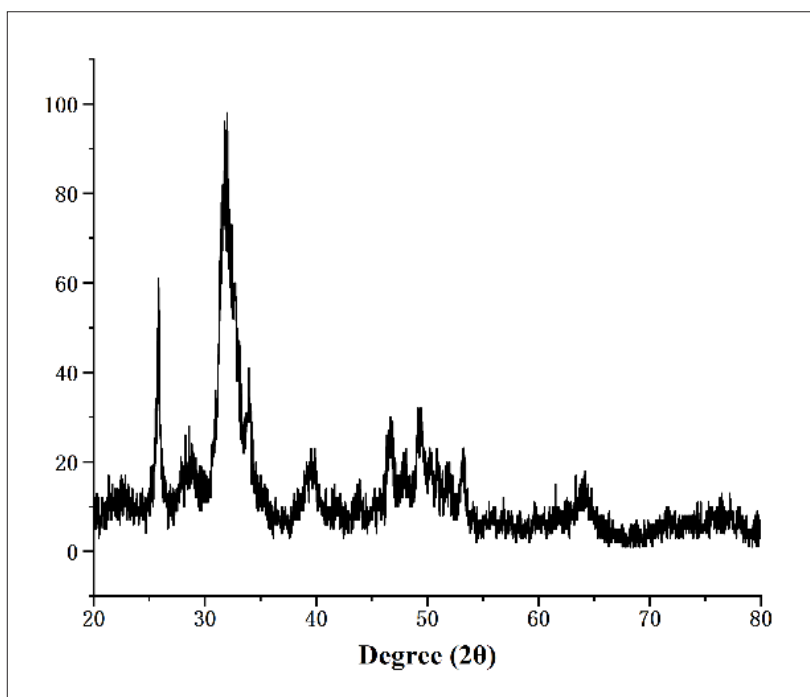


Figure S6. The X-ray diffraction test results of the mineralized 50% SCG scaffolds' surfaces.

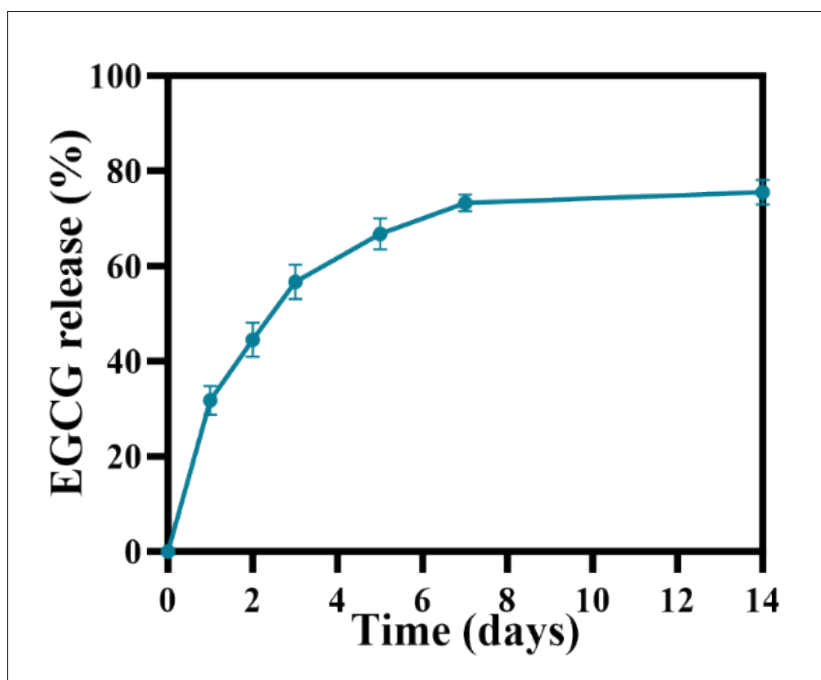


Figure S7. The rate of drug release of epigallocatechin gallate (EGCG).

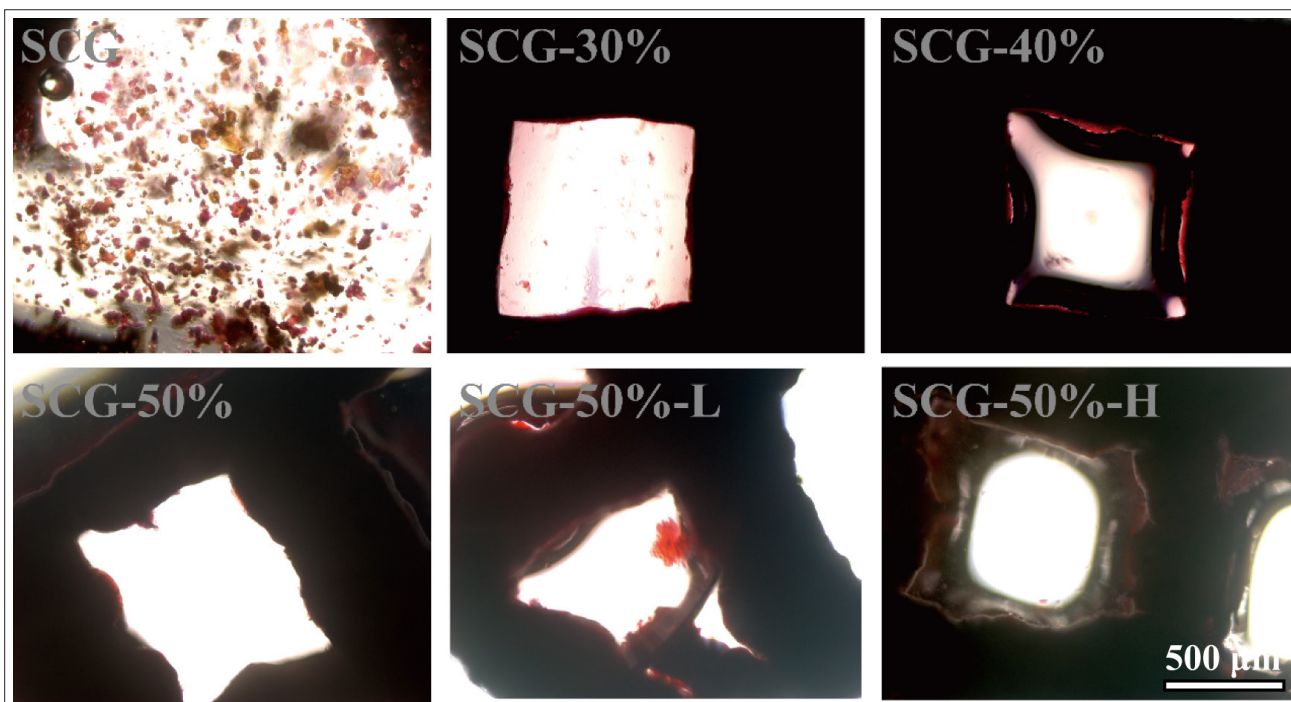


Figure S8. Alizarin red staining results of scaffolds with different components. Scale bar: 500 µm; magnification: 5×.

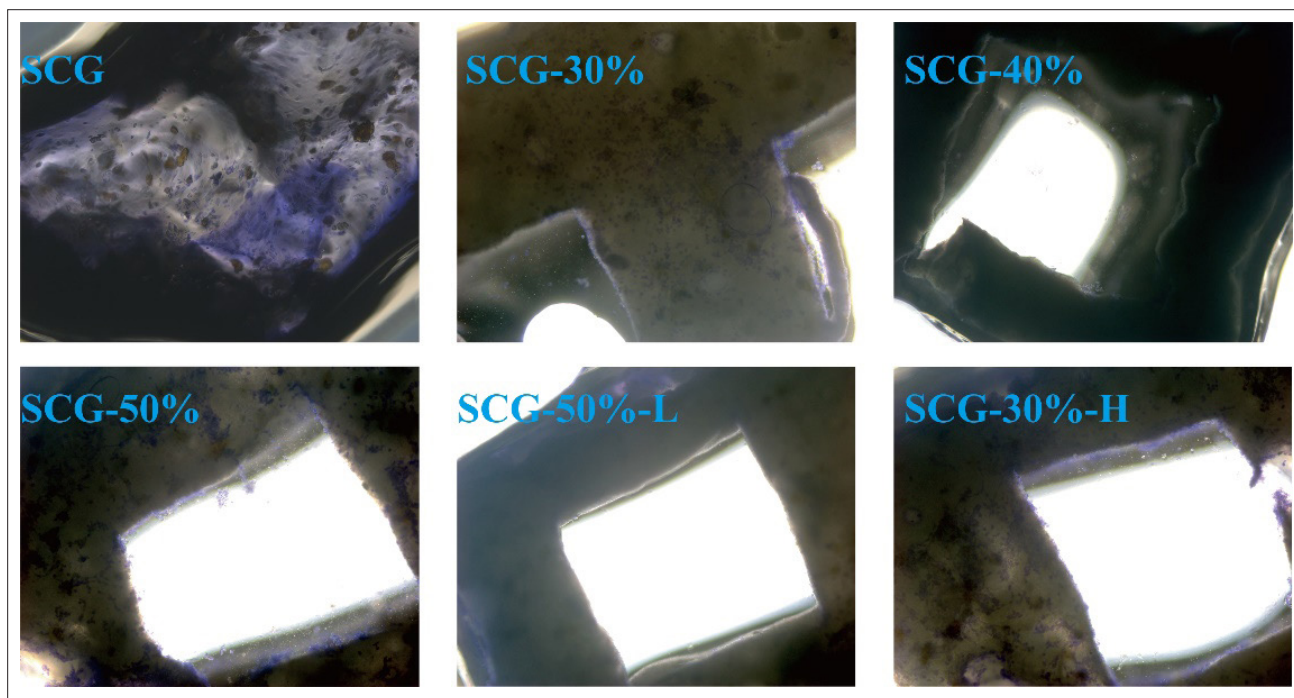


Figure S9. Staining results of the cytoskeleton of scaffolds with different components. Scale bar: 500 µm; magnification: 5×.

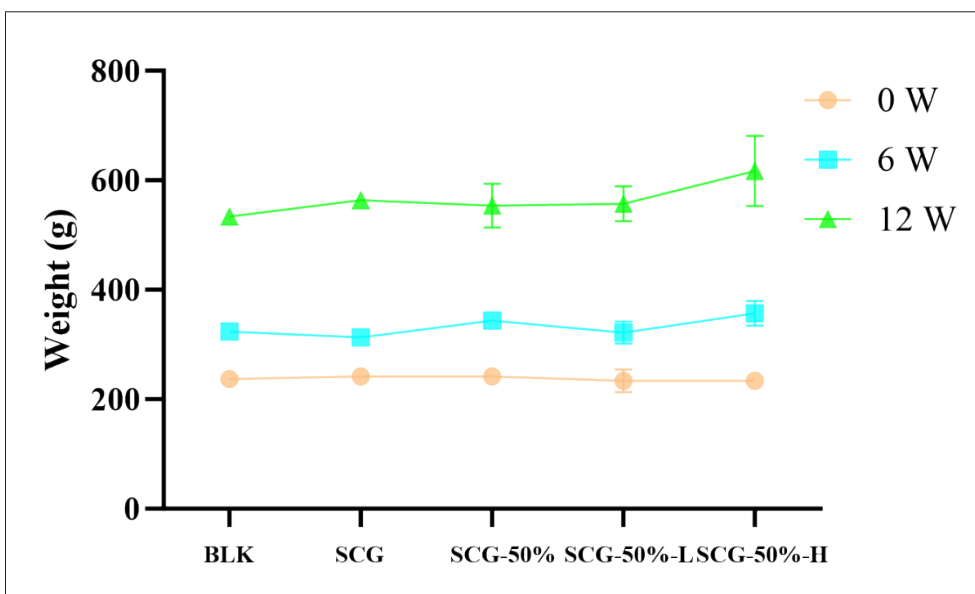


Figure S10. The changes in the body weight of rats at different time stages. Abbreviation: BLK, blank control.

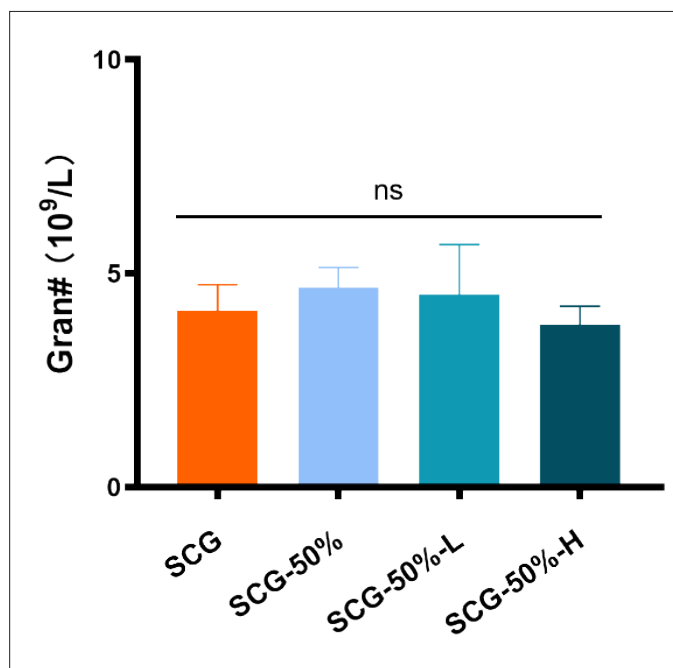


Figure S11. Analysis of neutrophils in the blood routine of rats. Abbreviation: ns, not significant.

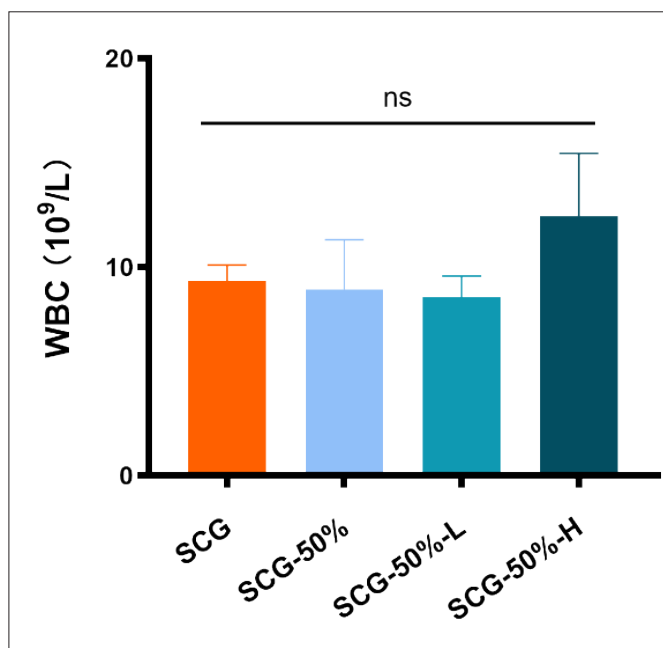


Figure S12. Analysis of neutrophils in the blood routine of rats. Abbreviations: WBC, whole blood count; ns, not significant.

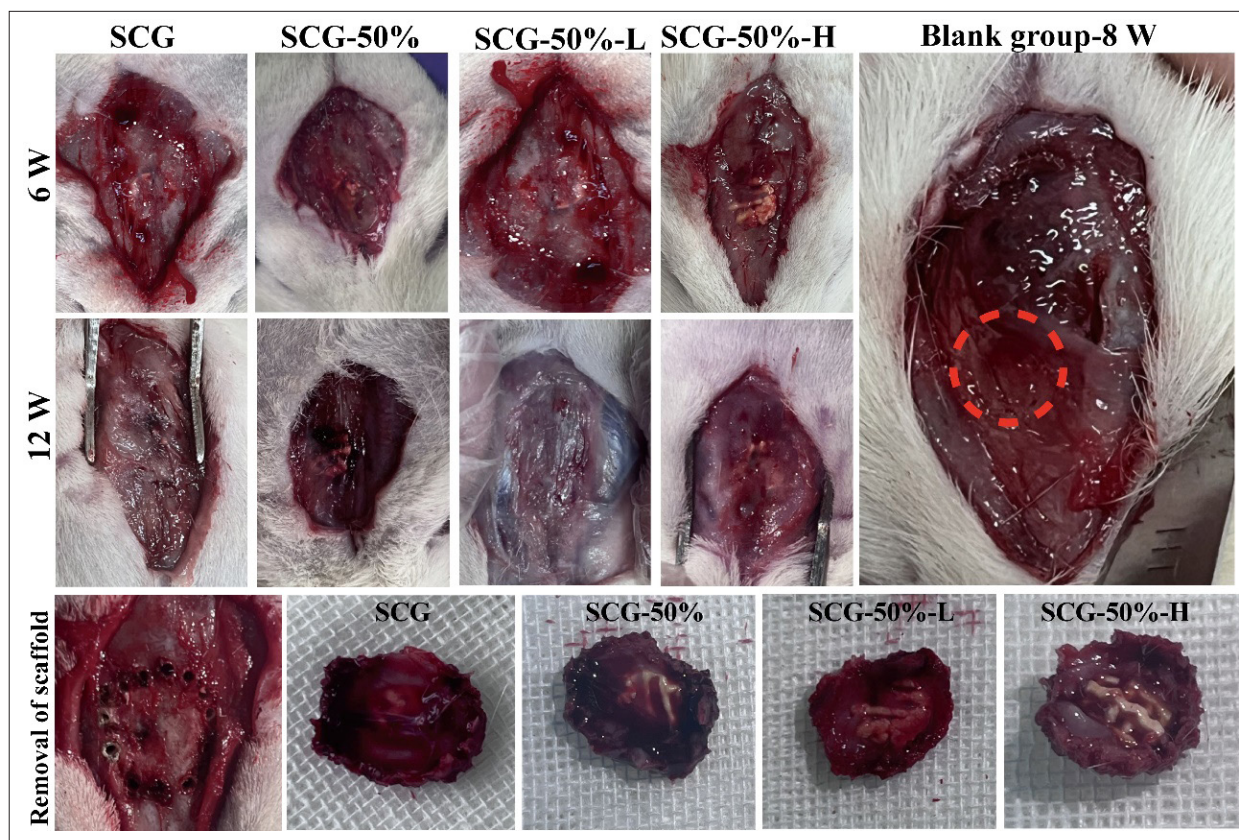


Figure S13. Scaffolds implantation status and removal at different time points. Scale bar: 5 mm