Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

Supporting Information

Injectable spontaneously formed asymmetric adhesive hydrogel with controllable removal for wound healing

Lei Liang, [a] Xi Li, [a] Zhouying Tan, [a] Min Liu, [a] Yuwei Qiu, [a] Qingyu Yu, [a] Chaojie Yu, [a] Mengmeng Yao, [a] Bingyan Guo, [a] Fanglian Yao, [ab] Pengcheng Che, *[c] Hong Zhang *[a] and Junjie Li *[ab]

[a] *School of Chemical Engineering and Technology, Tianjin University, Tianjin 300350, China.*

[b] *Frontiers Science Center for Synthetic Biology and Key Laboratory of Systems Bioengineering (Ministry of Education), Tianjin University, Tianjin 300350, China.*

[c] *School of Nursing and Rehabilitation, North China University of Science and Technology, Tangshan 063210, China.*

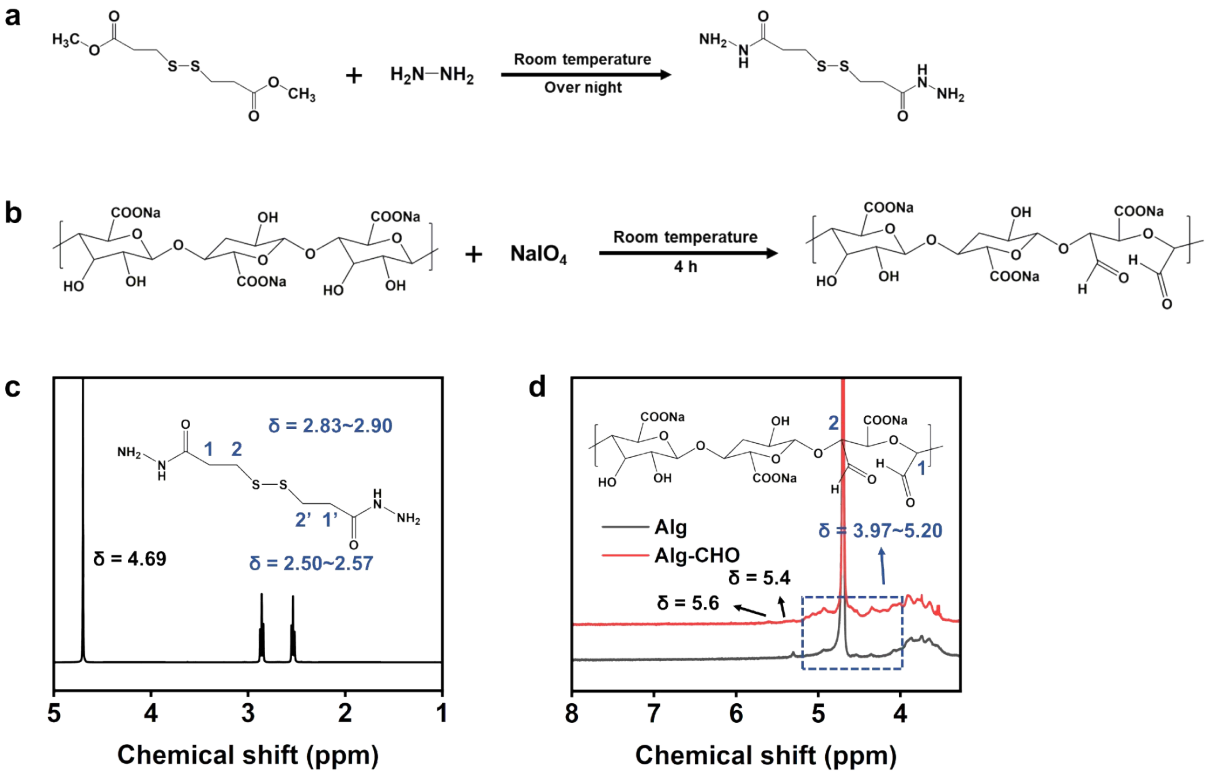

Figure S1. a) Synthesis reaction equation of DTPH and b) Alg-CHO. c) ^{1}H NMR spectra of DTPH and d) alginate/Alg-CHO.

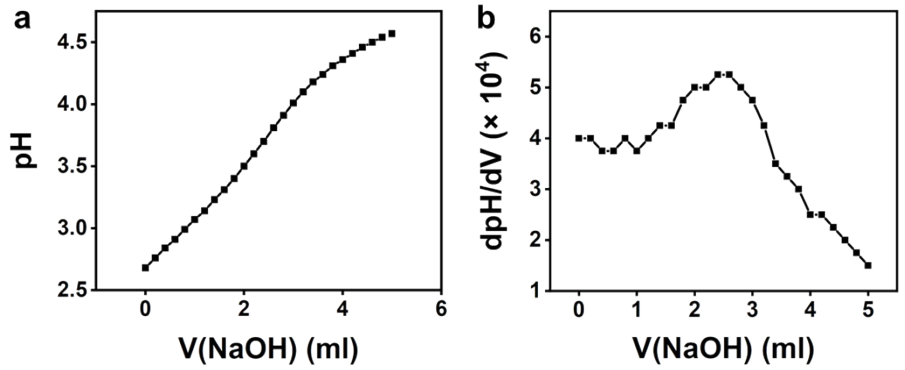

Figure S2. Hydroxylamine hydrochloride titration a) curve and b) calculated curve of Alg-CHO.

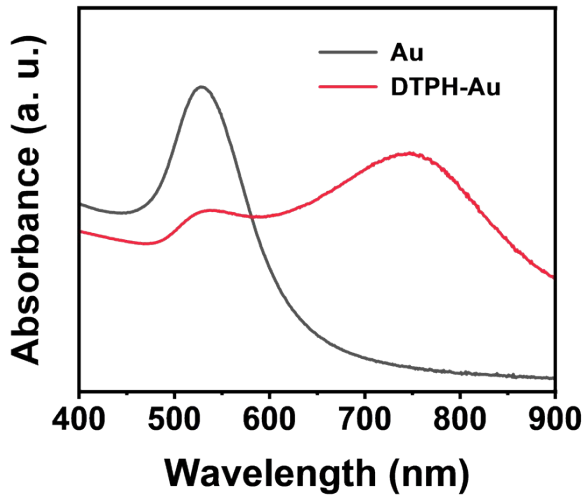

Figure S3. UV absorbance test of Au solution and DTPH-Au solution

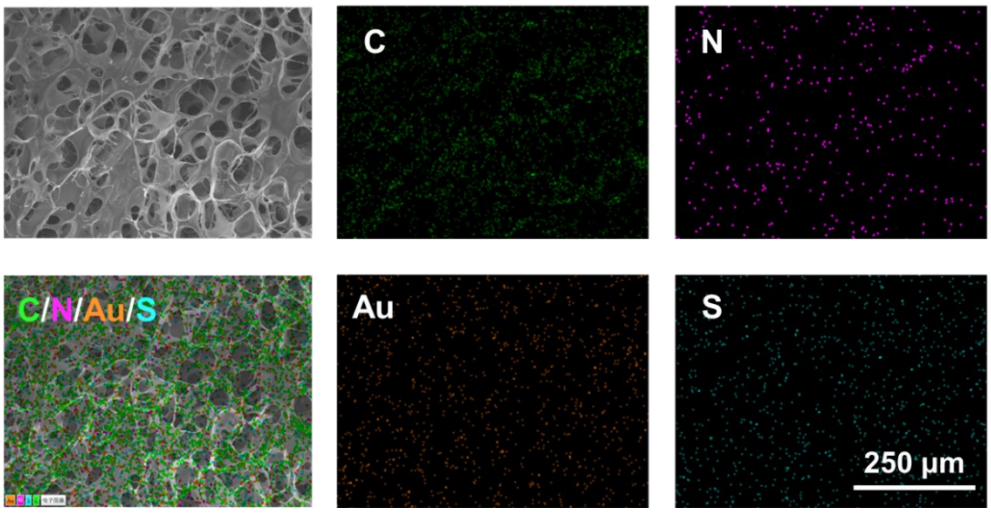

Figure S4. Scanning electron microscopy and mapping images of AGD_{15}-Au surface.

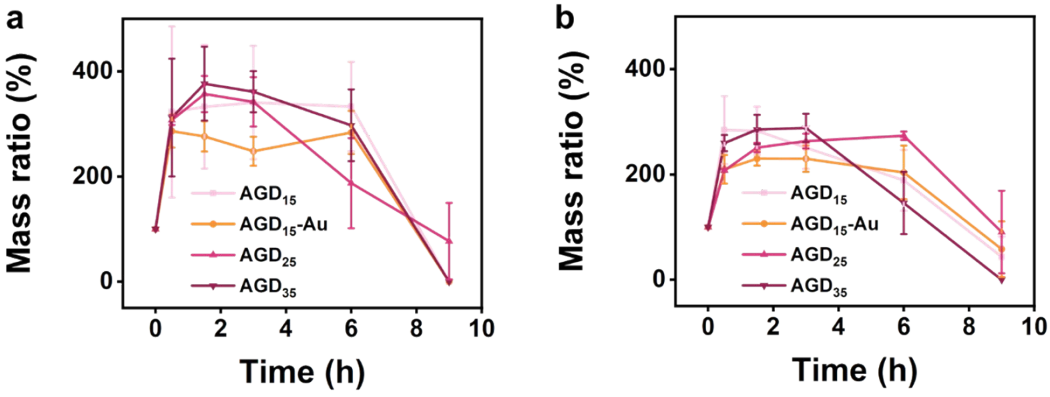

Figure S5. Degradation process of injectable asymmetric hydrogels (AGD/AGD_{15}-Au) by a) 6 wt% and b) 12 wt% glutathione solutions.

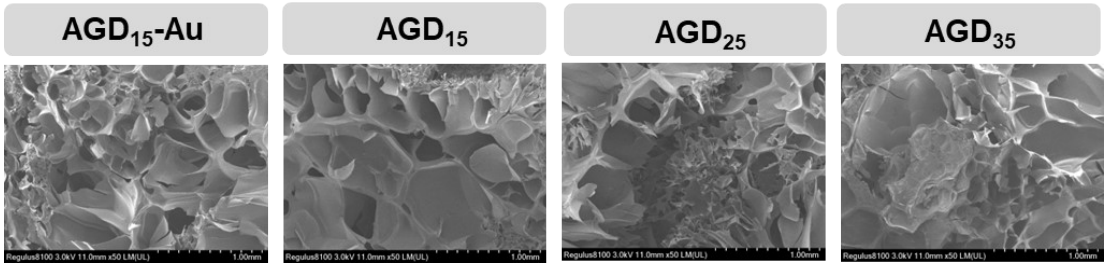

Figure S6. Scanning electron microscopy of the internal structure of injectable asymmetric hydrogels (AGD/AGD_{15}-Au).

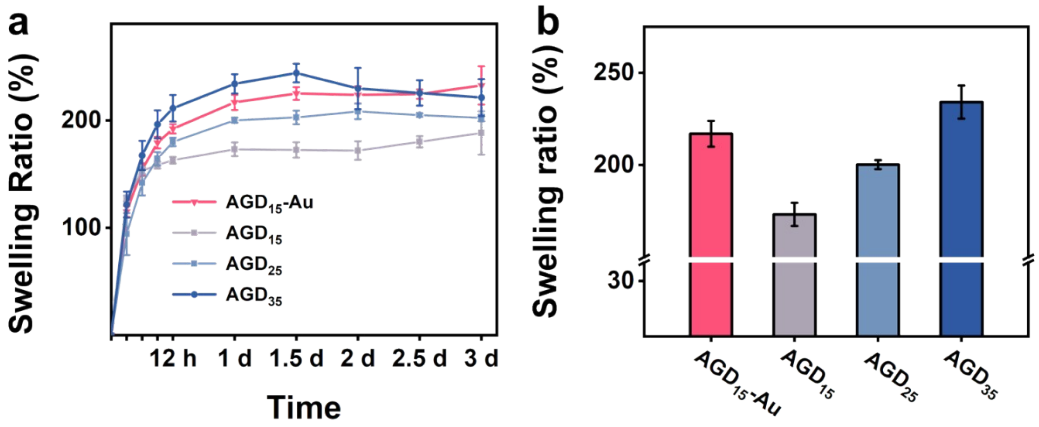

Figure S7. a) Swelling properties of injectable asymmetric hydrogels (AGD/AGD_{15}-Au) under deionized water and b) equilibrium swelling ratio at 3 days.

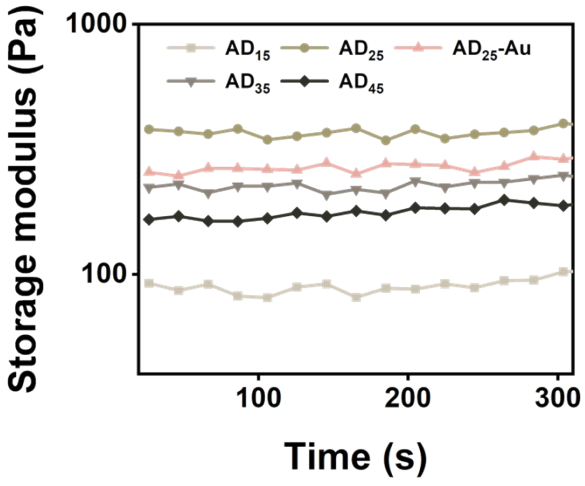

Figure S8. Time scanning rheological test of different hydrogels without gelatin (AD/AD_{25}-Au).

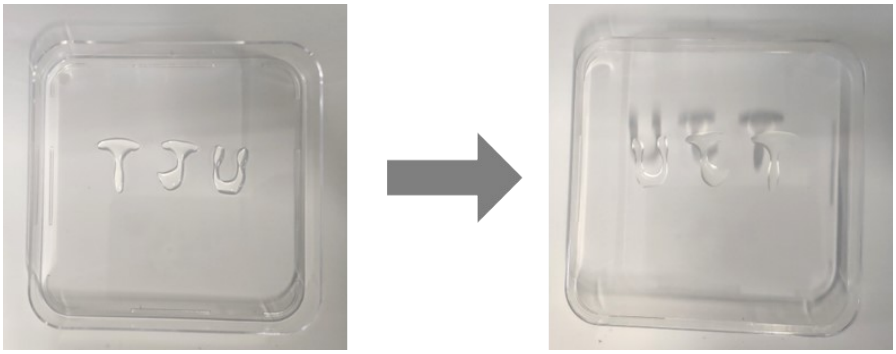

Figure S9. Injectable ability and stability of injectable asymmetric hydrogel (AGD_{15}-Au).

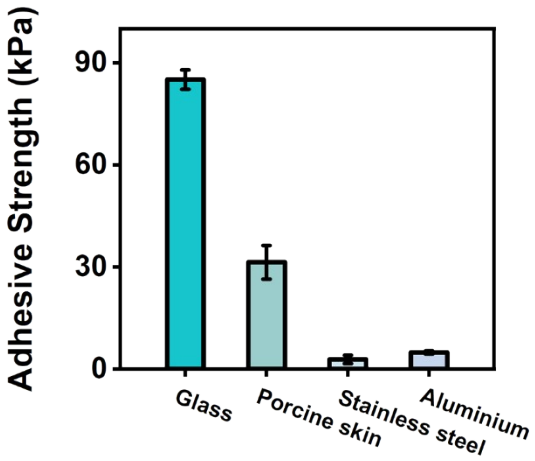

Figure S10. Lap shear adhesive strength of AGD_{15}-Au group with different substrates.

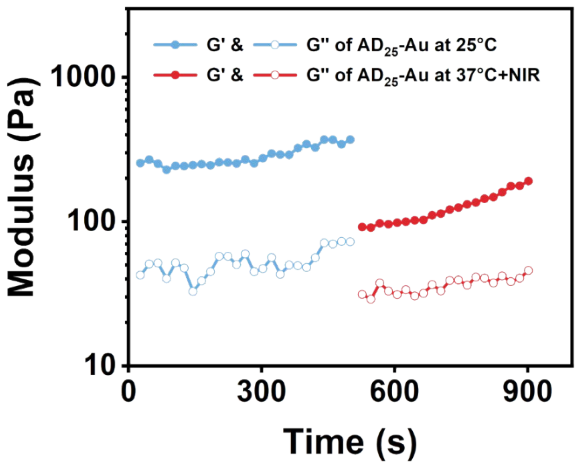

Figure S11. Time scanning rheological test of AD_{25}-Au group before and after 6 mins 808 nm illumination.

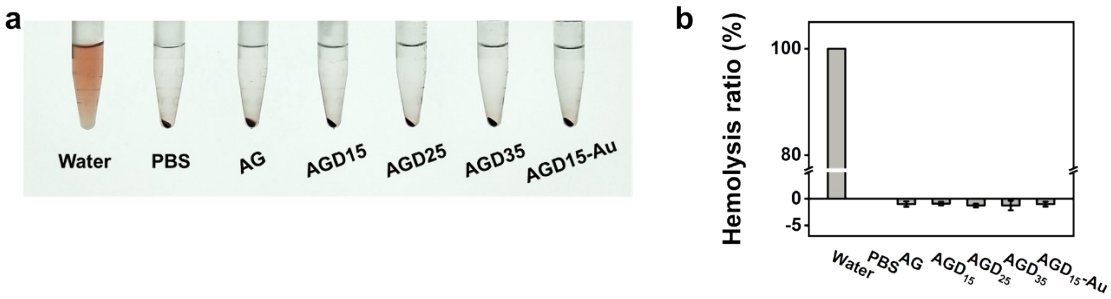

Figure S12. a) Optical images and b) quantitative statistics of hemolysis of injectable asymmetric hydrogels.

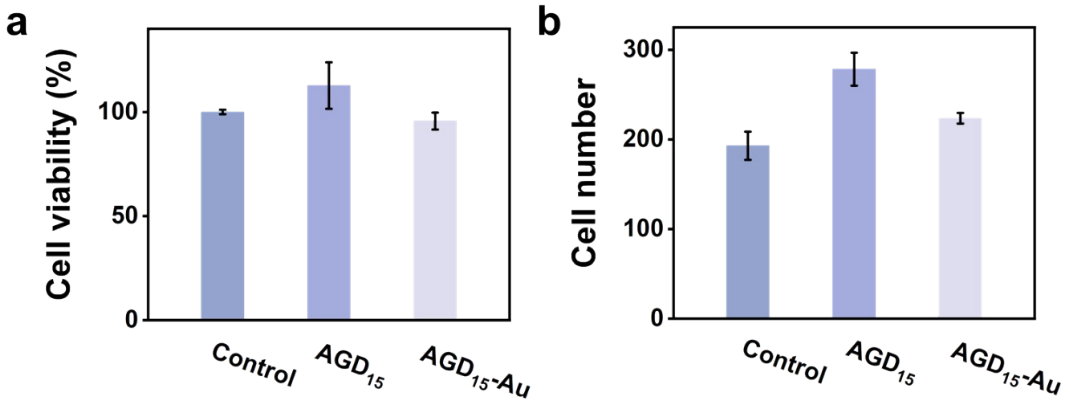

Figure S13. a) Cytocompatibility and b) statistical results of the number of cells under the bright field in the control group of AGD_{15}, and AGD_{15}-Au.

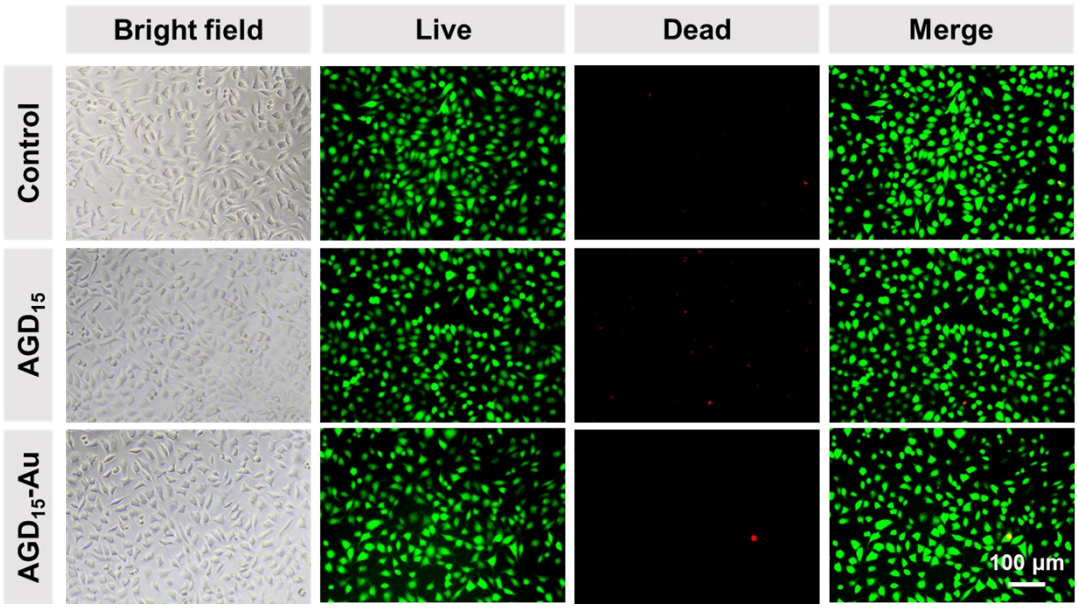

Figure S14. Bright field images and acridine orange/propidium iodide (AO/PI) staining of L929 cells cultured in the medium of control, AGD_{15} group, and AGD_{15}-Au group.