

Nanodot–Doped Peptide Hydrogel for Antibacterial Phototherapy and Wound Healing

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CONTENT

- (1) HPLC analysis graph of GR peptide.
- (2) The LC-MS results of peptide GR peptide.
- (3) AFM images of GR hydrogel.
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- (5) Temperature changes of CuS NDs (0.5 mg/mL) with different power
- (6) Zones of inhibition surrounding the different components paper disks against *S. aureus* on agar plates.
- (7) Crystal violet staining image and its corresponding absorbance for integrated *S. aureus* biofilm incubated with GR hydrogel and CuS-loaded hydrogel system followed by NIR laser irradiation (808 nm, 1.8 W/cm², 6 min).
- (8) Phototherapy of wounds on the back of mice.
- (9) H&E staining images of brain, heart, liver, spleen, kidney, and lung sections from mice in each treatment group.
- (10) ICP-MS analysis of copper contents in skin wound, spleen, kidney, blood and liver.



Figure S1. HPLC analysis graph of GR peptide.

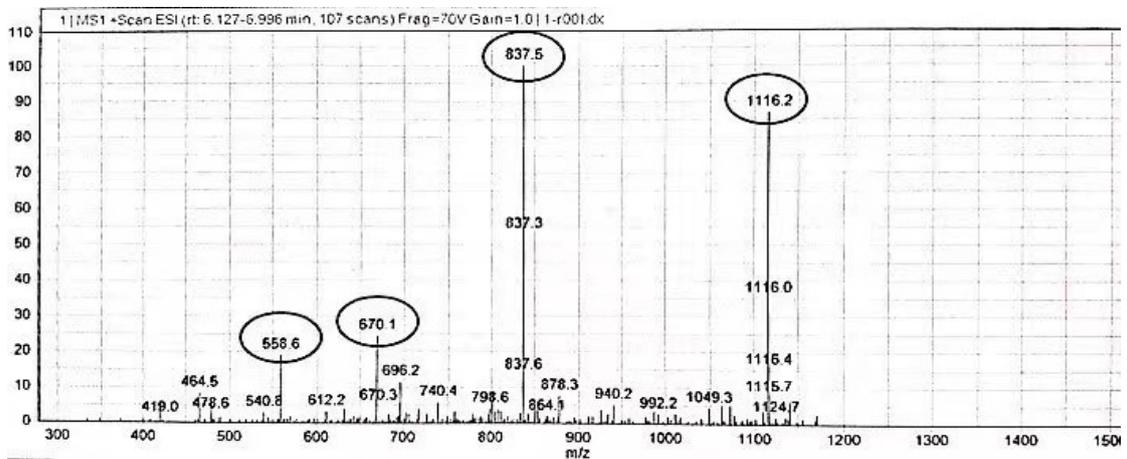


Figure S2. The LC-MS results of peptide GR peptide. The identity of GR peptide was confirmed by LC-MS: m/z was calculated for $[M+3H]^{3+}$ 1116.6, found 1116.2; $[M+4H]^{4+}$ 837.7, found 837.5; $[M+5H]^{5+}$ 670.4, found 670.1. $[M+6H]^{6+}$ 558.8, found 558.6.

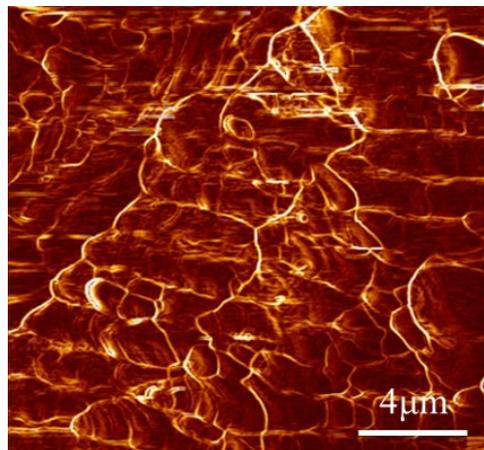


Figure S3. AFM images of GR hydrogel.

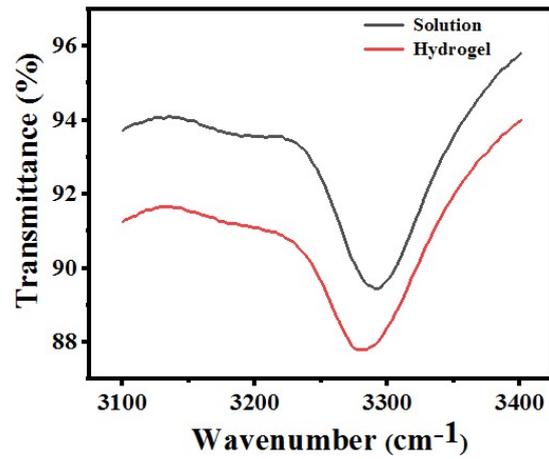


Figure S4. FT-IR spectra of GR peptide in solution and hydrogel phase.

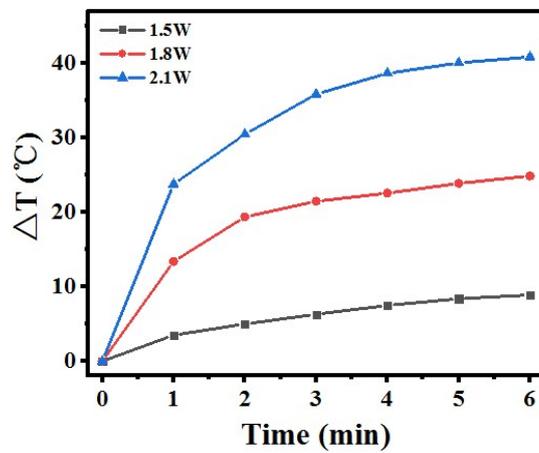


Figure S5. Temperature changes of CuS NDs (0.5 mg/mL) with different power densities.

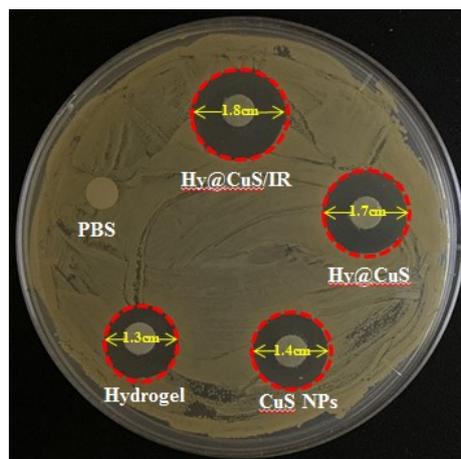


Figure S6. Zones of inhibition surrounding the different components paper disks against *S. aureus* on agar plates.

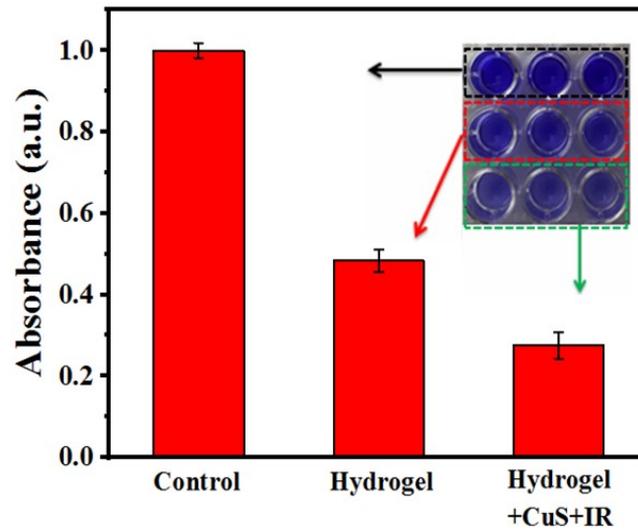


Figure S7. Crystal violet staining image and its corresponding absorbance for integrated *S. aureus* biofilm incubated with GR hydrogel and CuS-loaded hydrogel system followed by NIR laser irradiation (808 nm, 1.8 W/cm², 6 min).

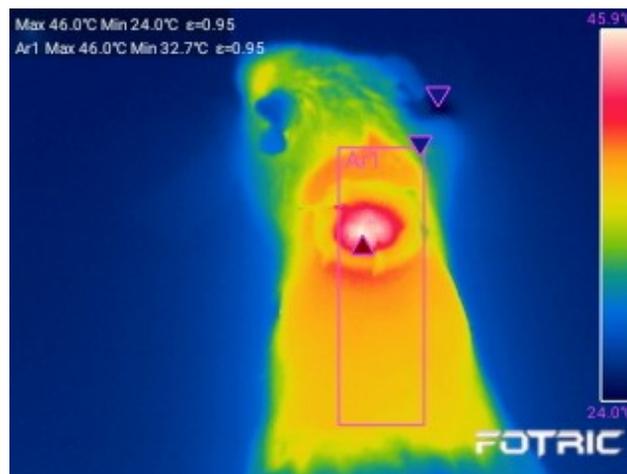


Figure S8. Phototherapy of wounds on the back of mice.

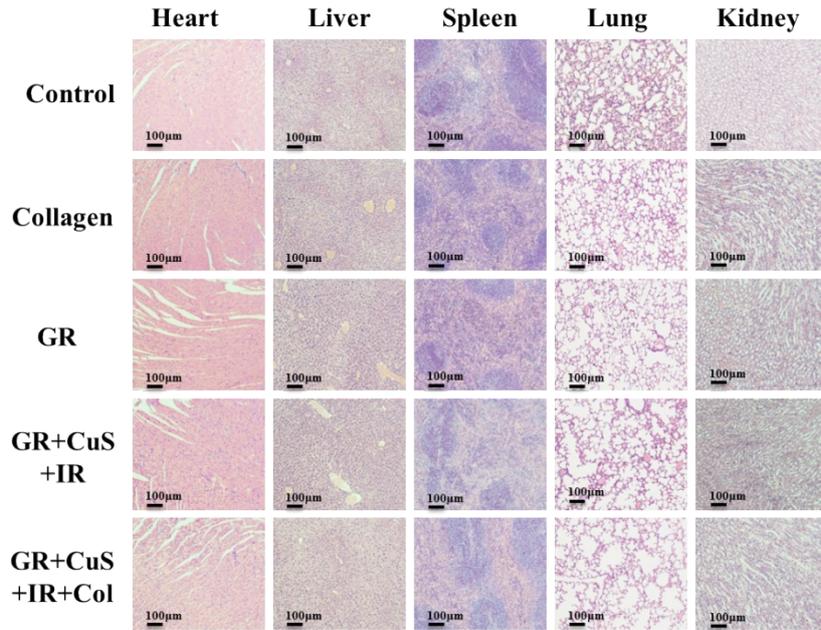


Figure S9. H&E staining images of brain, heart, liver, spleen, kidney, and lung sections from mice in each treatment group.

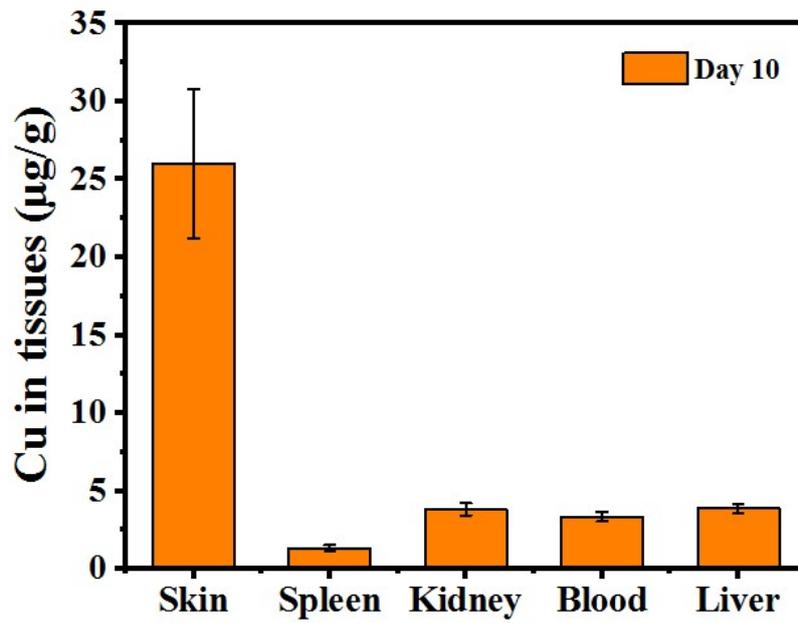


Figure S10. ICP-MS analysis of copper contents in skin wound, spleen, kidney, blood and liver.