Electronic Supplementary Information

Preparing 3D-printable silk fibroin hydrogels with robustness by a two-step crosslinking method

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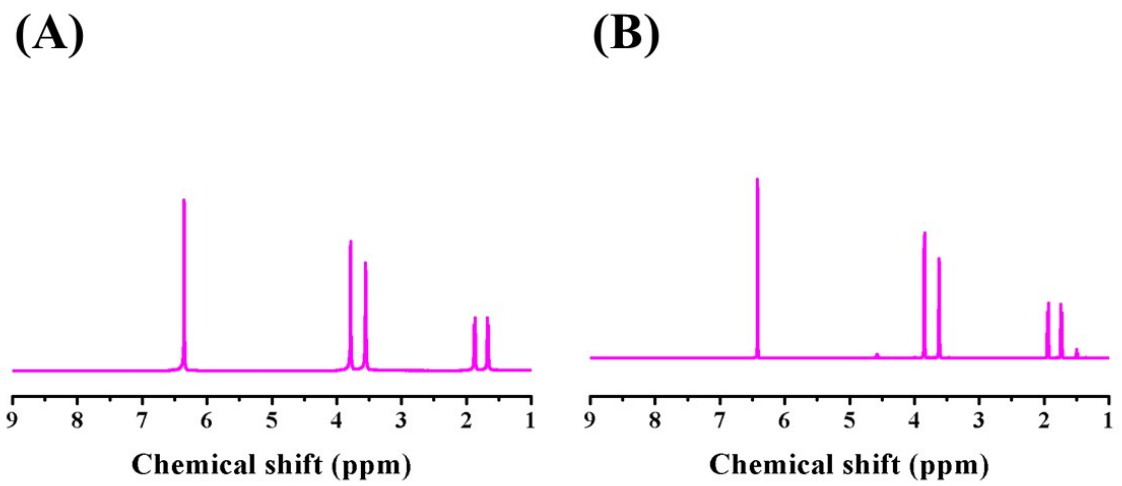

Figure S1. (A) ^{1}H NMR spectrum of carbic anhydride. (B) ^{1}H NMR spectrum of carbic anhydride treated by trifluoroacetic acid for 14 d.

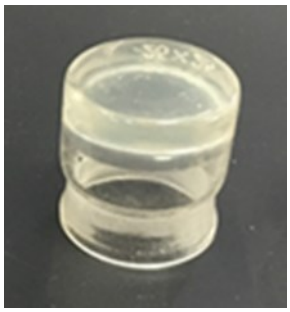

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Figure S2. Digital picture of 10 wt% chemically crosslinked RSF hydrogel.

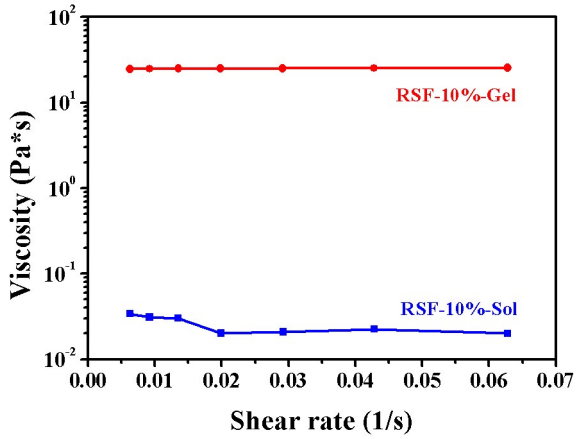

Figure S3. Viscosity of 10 wt% RSF-NB aqueous solution and 10 wt% chemically crosslinked RSF hydrogel.

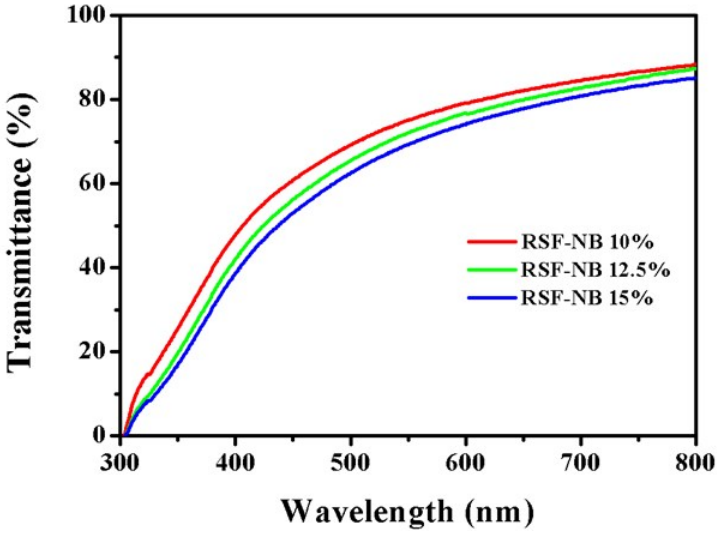

Figure S4. Transmittance spectra of RSF-NB solutions with different concentrations.

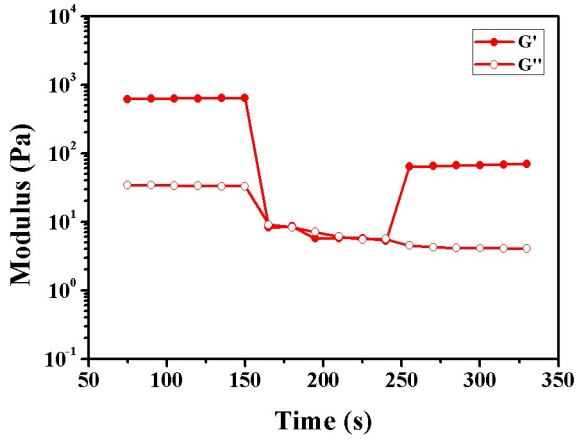

Figure S5. Shear-thinning behaviour of 10 wt% chemically crosslinked RSF hydrogel.

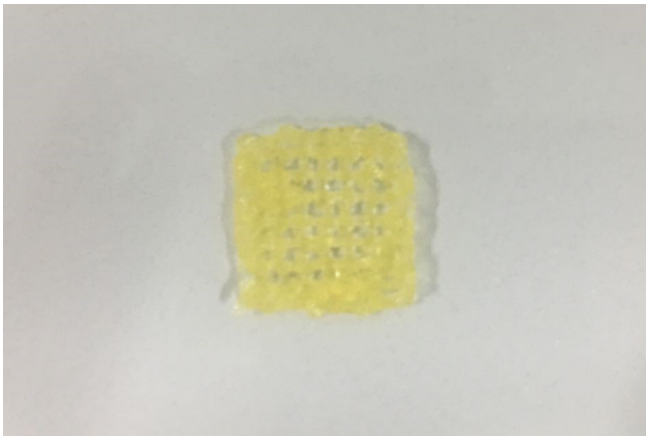

Figure S6. Digital photo of a 3D printed chemically crosslinked RSF hydrogel dyed with curcumin.

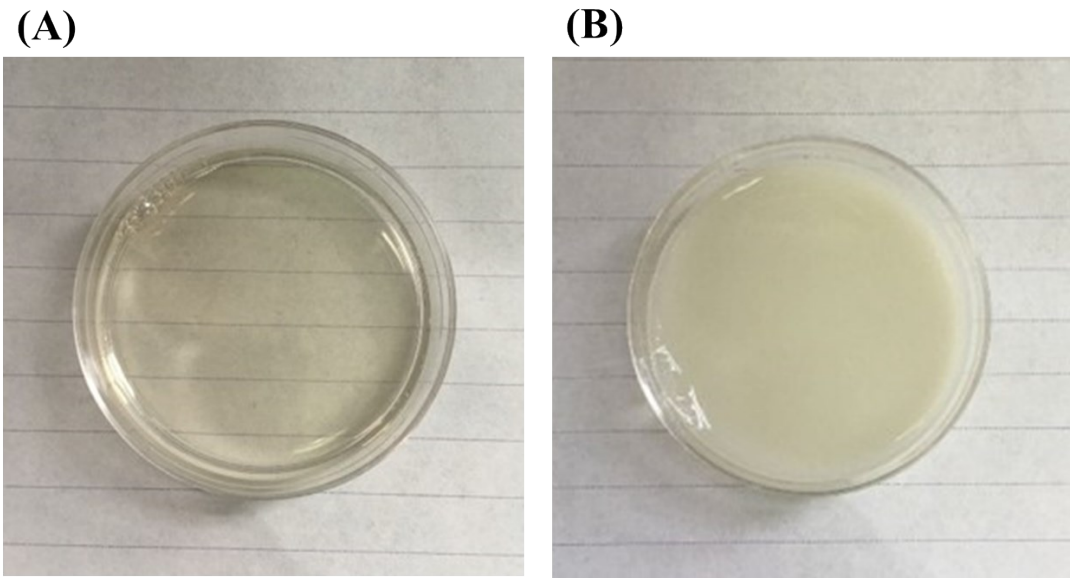

Figure S7. (A) Digital picture of chemically crosslinked RSF hydrogel. (B) Digital picture of double-network RSF hydrogel.

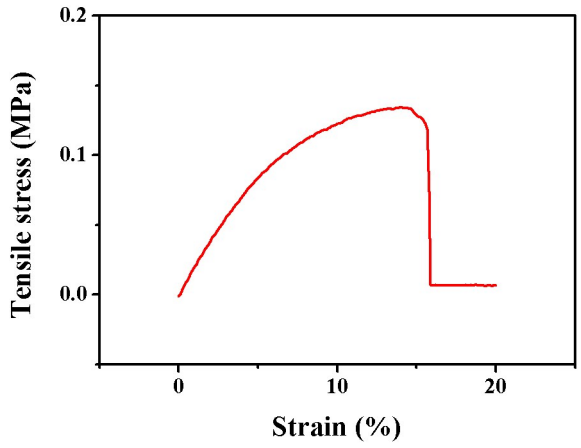

Figure S8. Representative tensile curve of 10 wt% double-network RSF hydrogel.

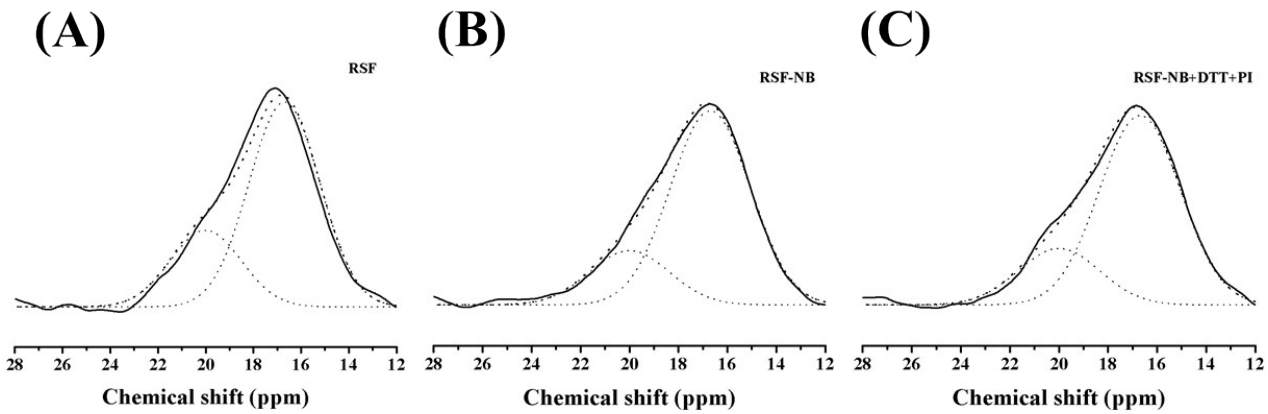

Figure S9. ^{13}C NMR spectra and simulated ones of (A) RSF solution, (B) RSF-NB solution, (C) precursor solution.

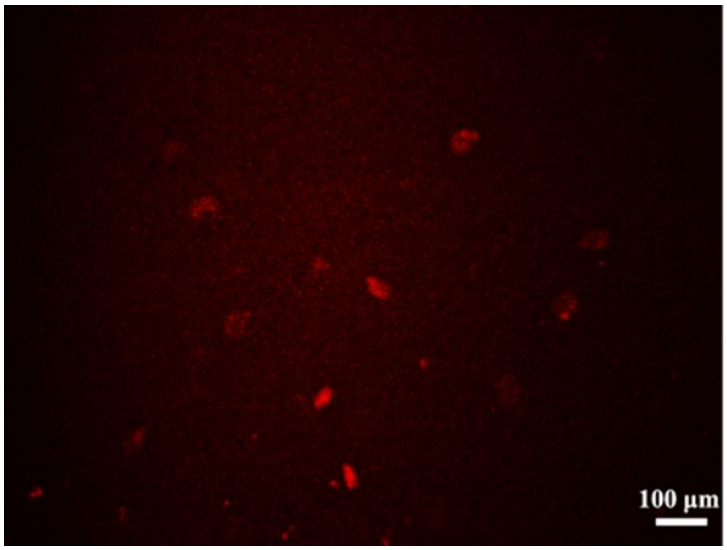

Figure S10. Fluorescence microscope image of L929 cells incubated on the surface of chemically crosslinked hydrogel for 24 h.

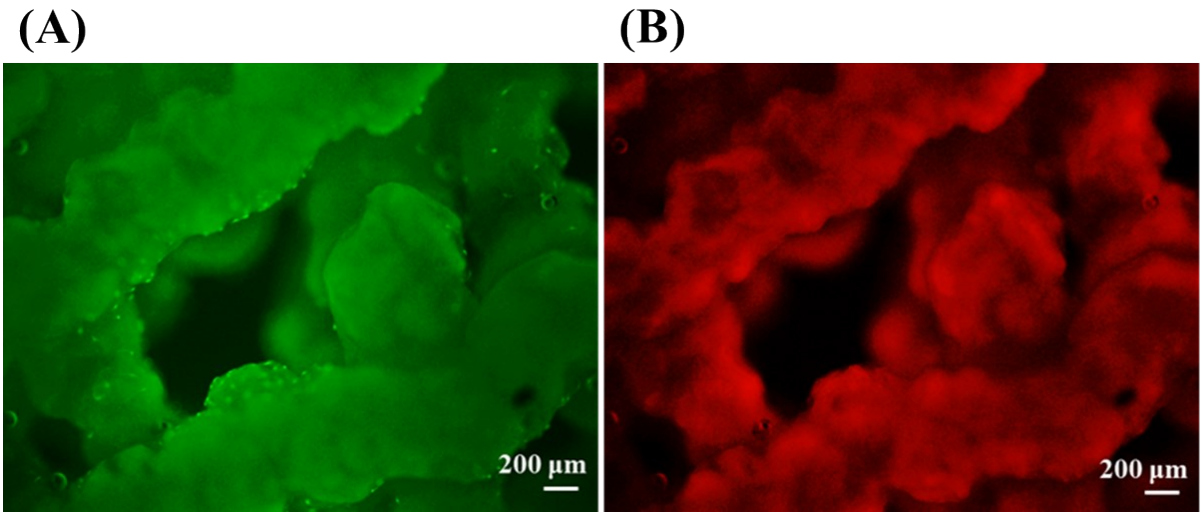

Figure S11. (A, B) Fluorescence microscope images of L929 cells incubated in 3D printed double-network RSF hydrogel for 3 days with live/dead assay.