

## **Supporting information**

### **Rapid Recovery Double Cross-Linking Hydrogel with Stable Mechanical Properties and High Resilience Triggered by Visible Light**

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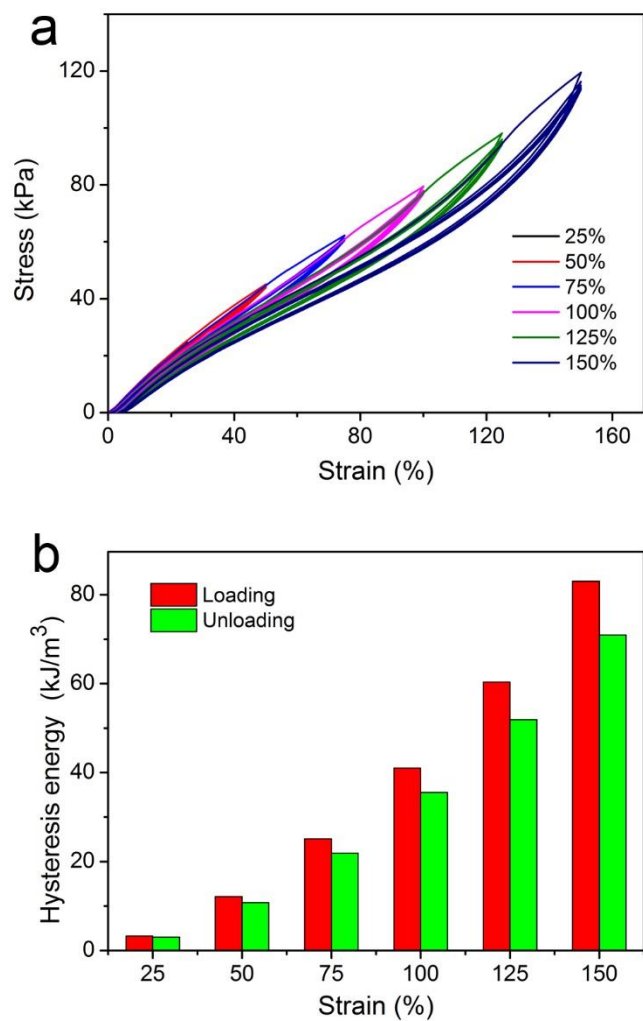


Figure S1 (a) Stress-strain responses of Gel-0 submitted to a cyclic tensile with increasing maximum strain every 5 cycles. (b) The calculated hysteresis energy of Gel-0 during the first cyclic of softening process.

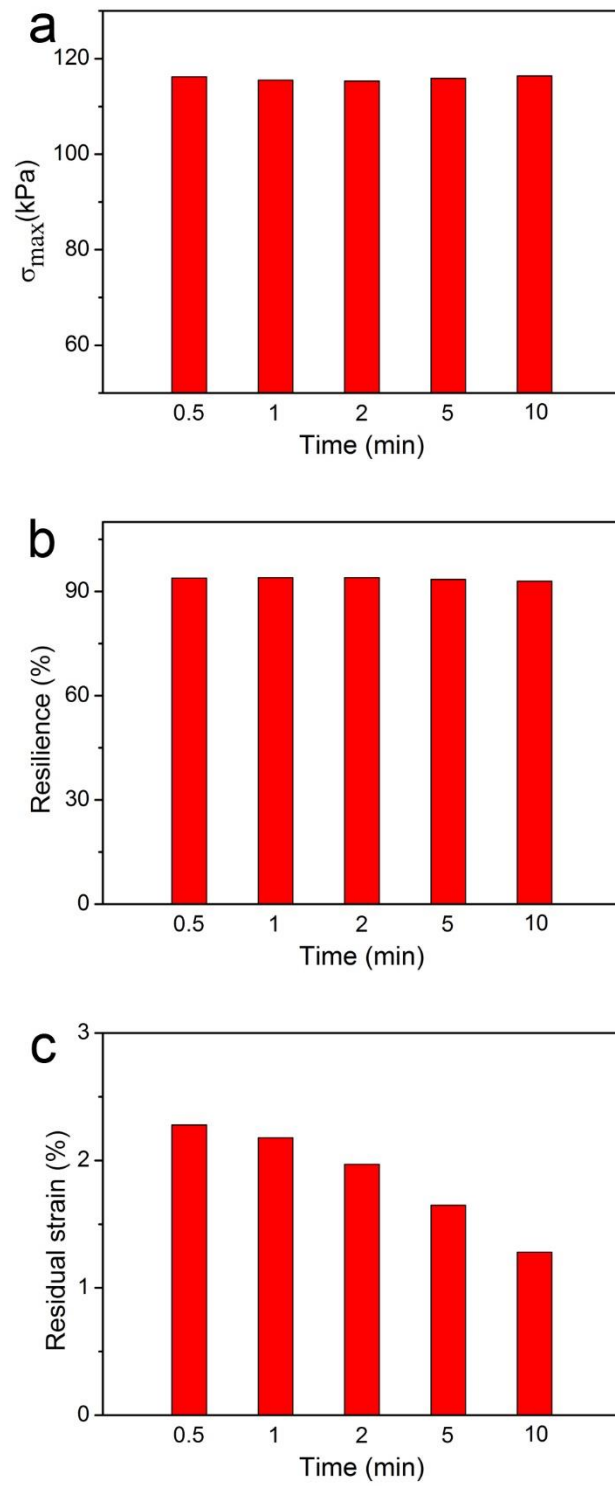


Figure S2 Intermittent cyclic tensile tests of Gel-2 at a 125% strain with different rest time. (a) Maximum stress. (b) Resilience. (c) Residual strain.

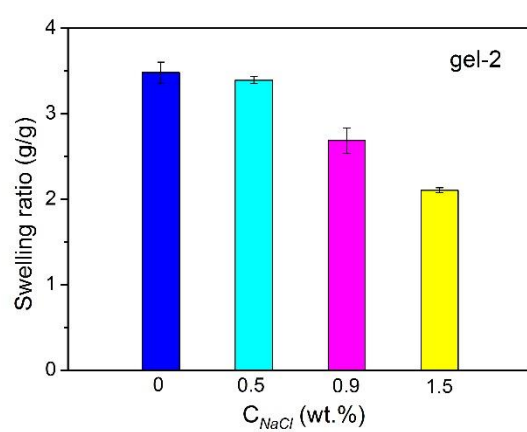


Figure S3 Swelling ratios of Gel-2 at various NaCl concentrations. (Error bars, S.D.; n=3)

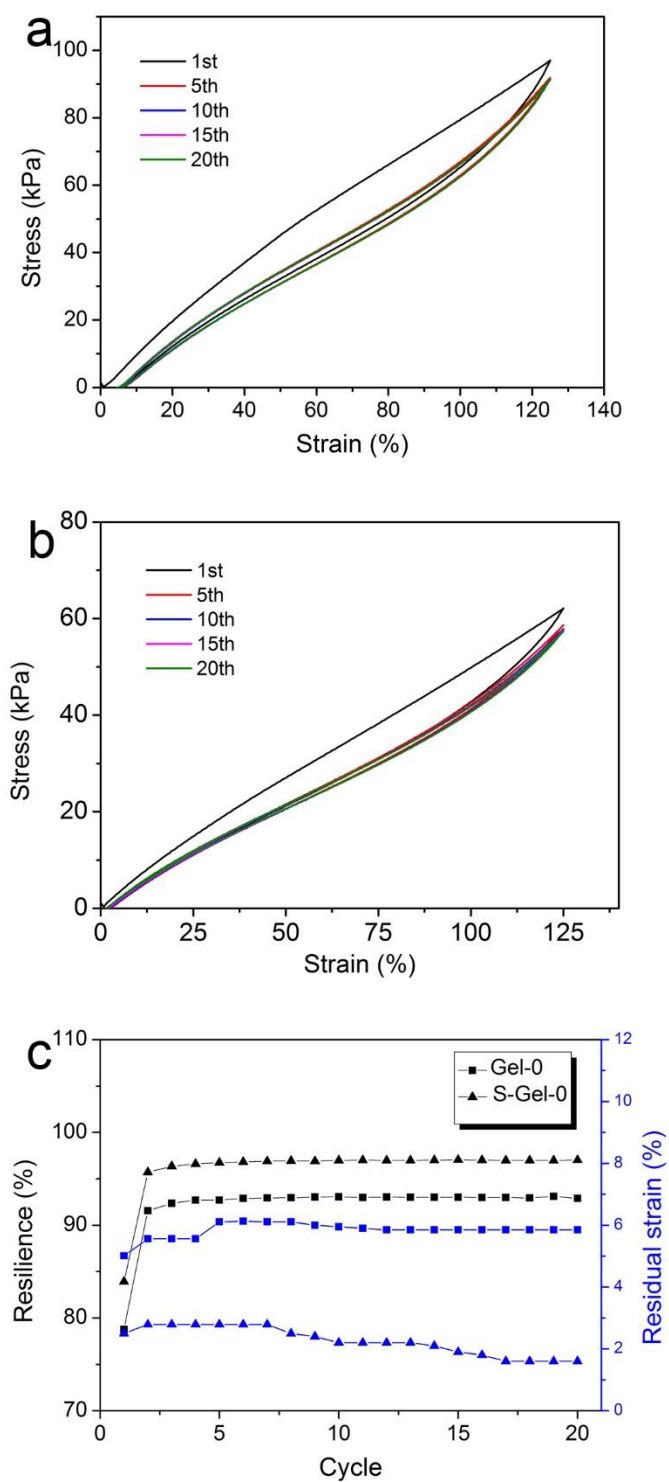


Figure S4 (a) Cyclic tensile test of Gel-0 at a 125% strain for 20 cycles. (b) Cyclic tensile test of S-Gel-0 at a 125% strain for 20 cycles. (c) Resilience and residual strain of Gel-0 and S-Gel-0 at a strain of 125%.