

SUPPORTING INFORMATION

Bioinspired Gradient Hydrogel Actuators with Rewritable Patterns and Programmable Shape Deformation

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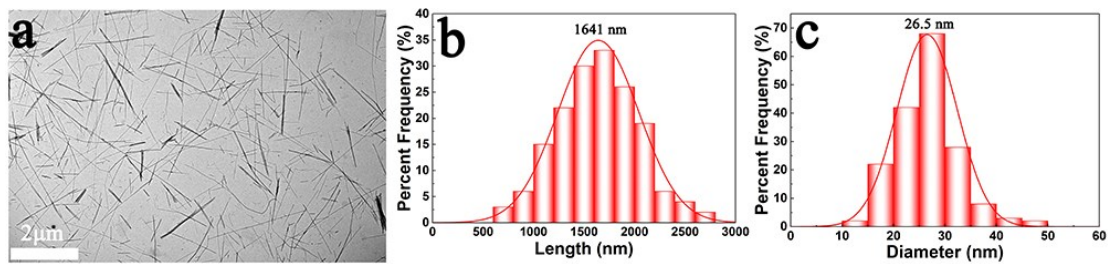


Figure S1. TEM image (a), length (b), and diameter distribution (c) of TCNCs.

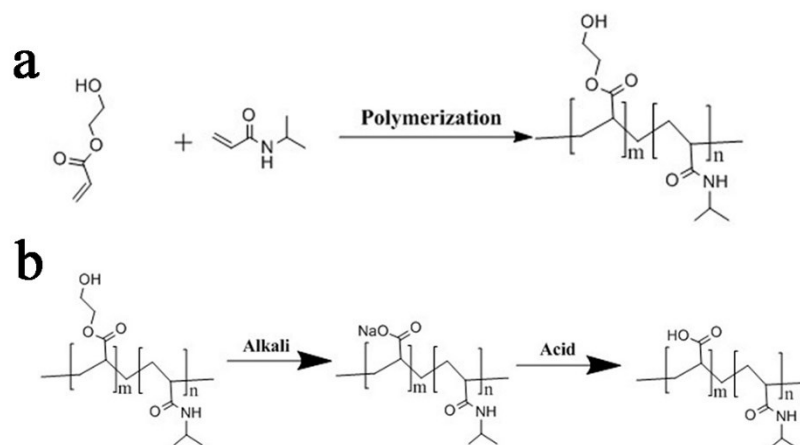


Figure S2. Polymerization of monomers (a), and hydrolysis and protonation of polymer (b).

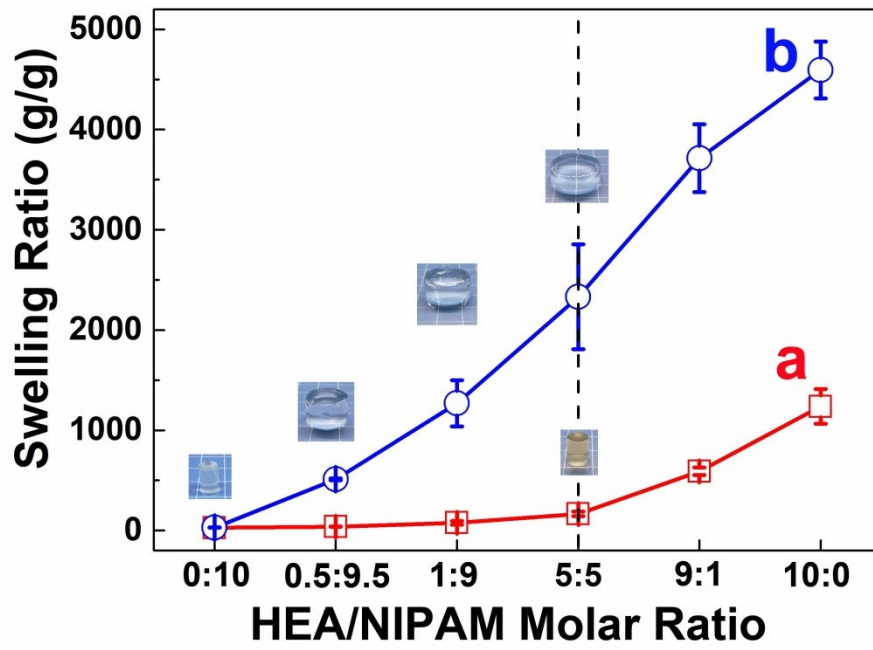


Figure S3. The dependence of swelling ratio of nanocomposite hydrogels on the HEA/NIPAM molar ratio before (a) and after alkali treatment (b).

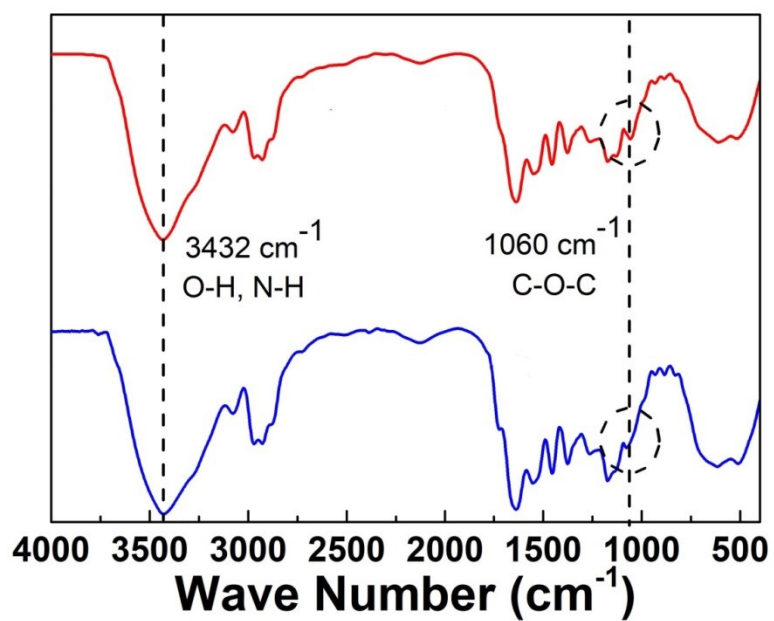


Figure S4. FTIR spectra of the nanocomposite hydrogel (top) and P(NIPAM-*co*-HEA)/TCNC mixture.

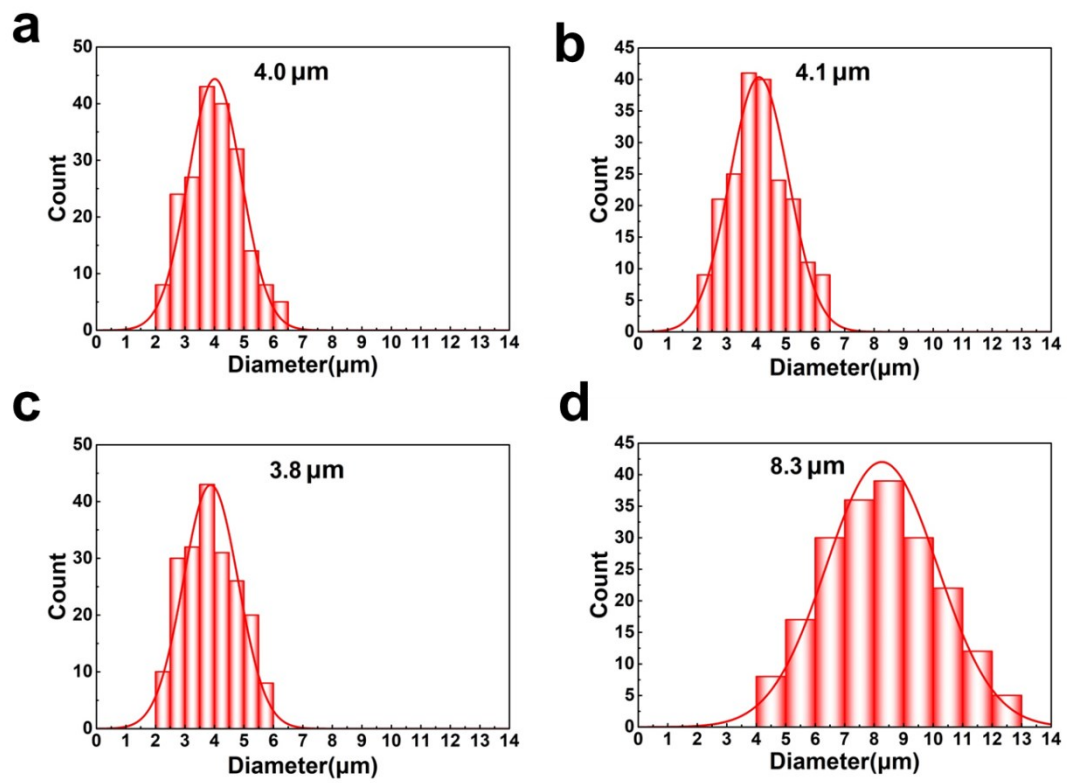


Figure S5. Distribution of pore size for hydrogel samples. (a) top surface of isotropic hydrogel, (b) bottom surface of isotropic hydrogel, (c) top surface of gradient hydrogel, and (d) bottom surface of gradient hydrogel.

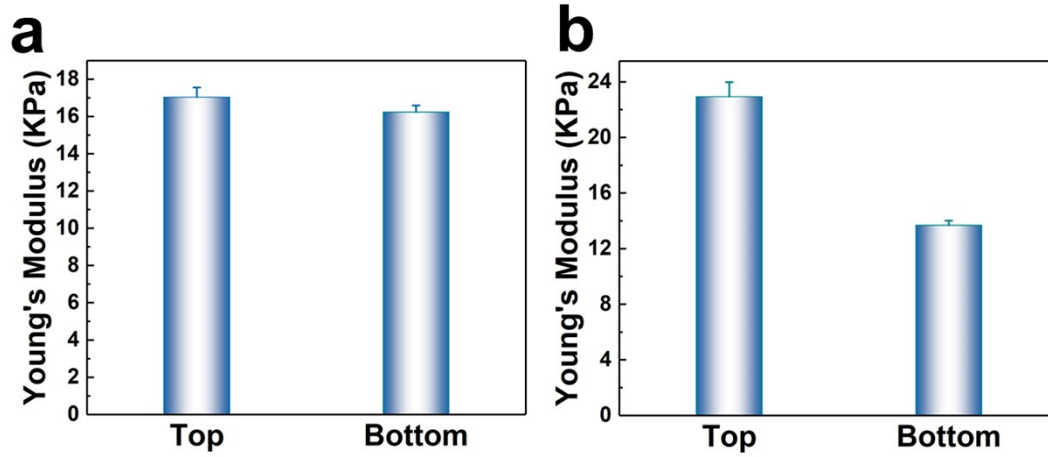


Figure S6. Young's modulus of nanocomposite hydrogels prepared without (a) and with DC electric field induction (b).

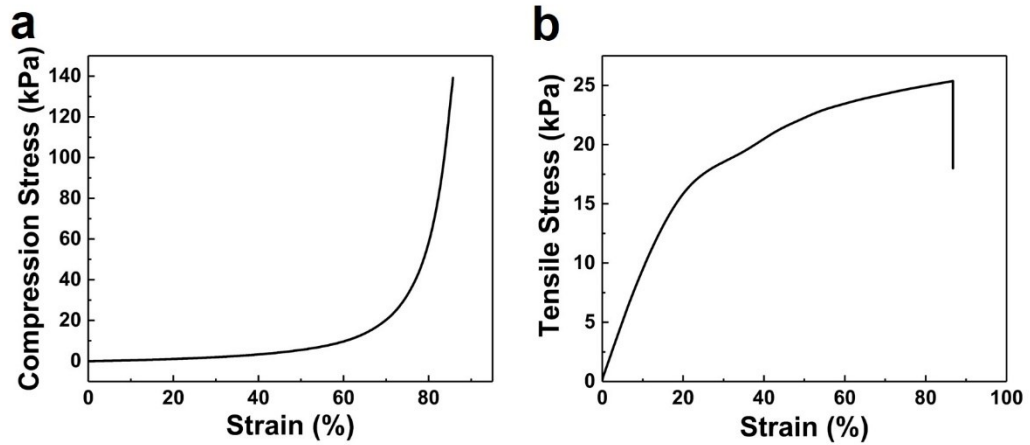


Figure S7. Compressive (a) and tensile stress-strain curves (b) of hydrogel samples.

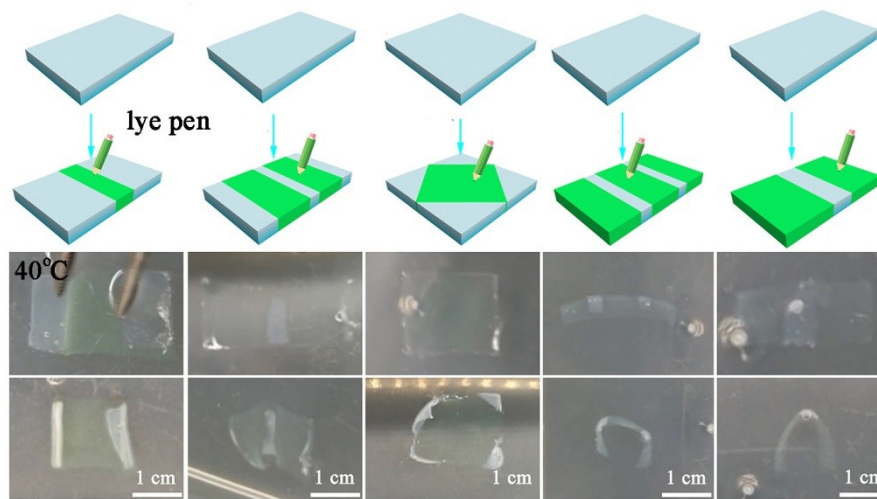


Figure S8. Deformations of the gradient hydrogels with various patterns in 40 °C deionized water.

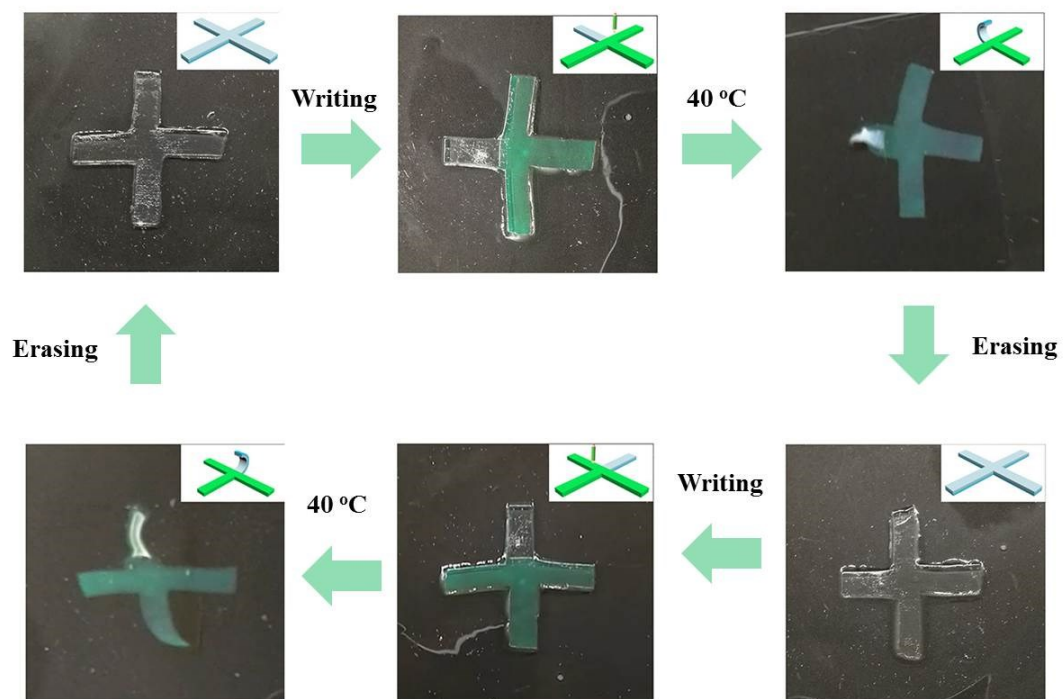


Figure S9. Photographs of the rewritable and erasable behaviors of gradient hydrogel.