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

Supplementary Information: A Redox-Responsive Hyaluronic Acid-Based Hydrogel for Chronic Wound Management

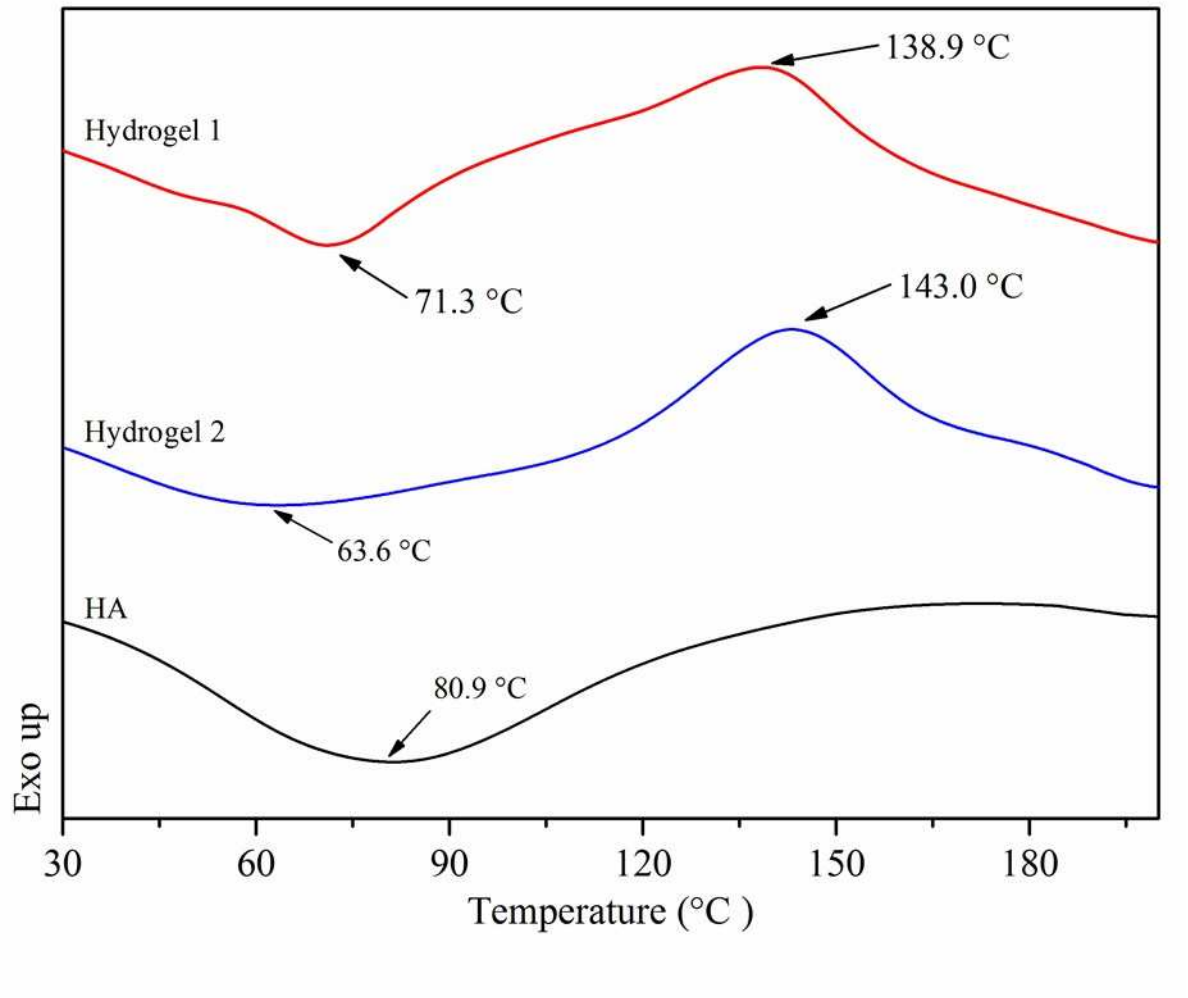

Figure S1. DSC thermograms corresponding to the crosslinked polymer used to form hydrogel **1** (top) and hydrogel **2** (middle), and linear HA.

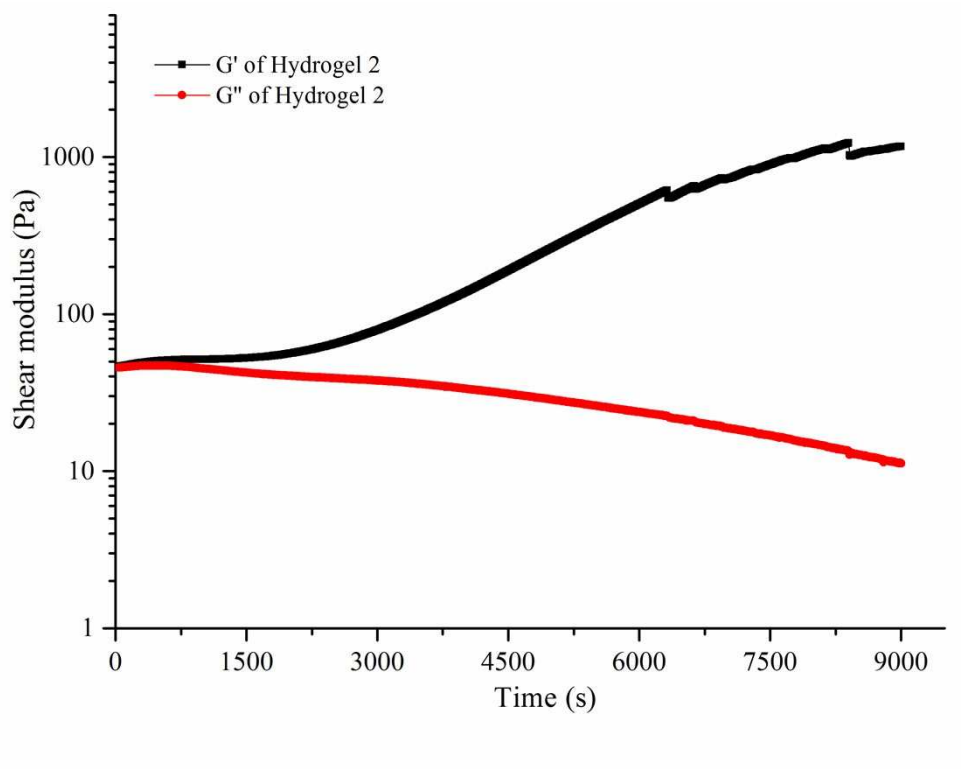

Figure S2. Time sweep rheological analysis during HA crosslinking to assess the gelation kinetics for hydrogel **2**.

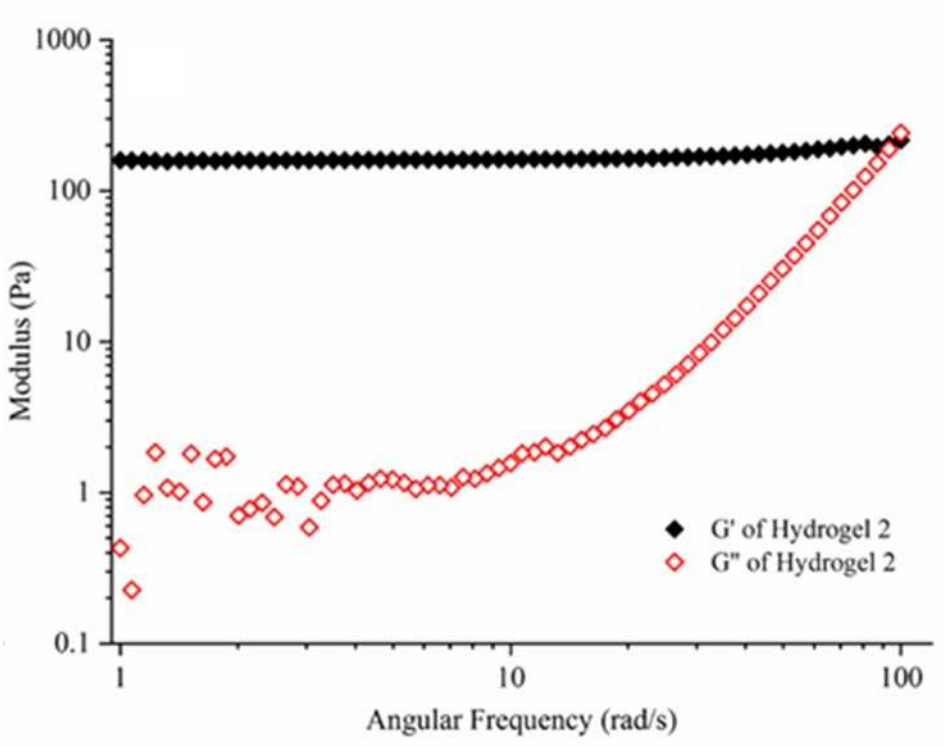

Fig. S3. Frequency sweep rheological analysis of the storage (*G'*) and loss (*G''*) modulus in hydrogel **2**.

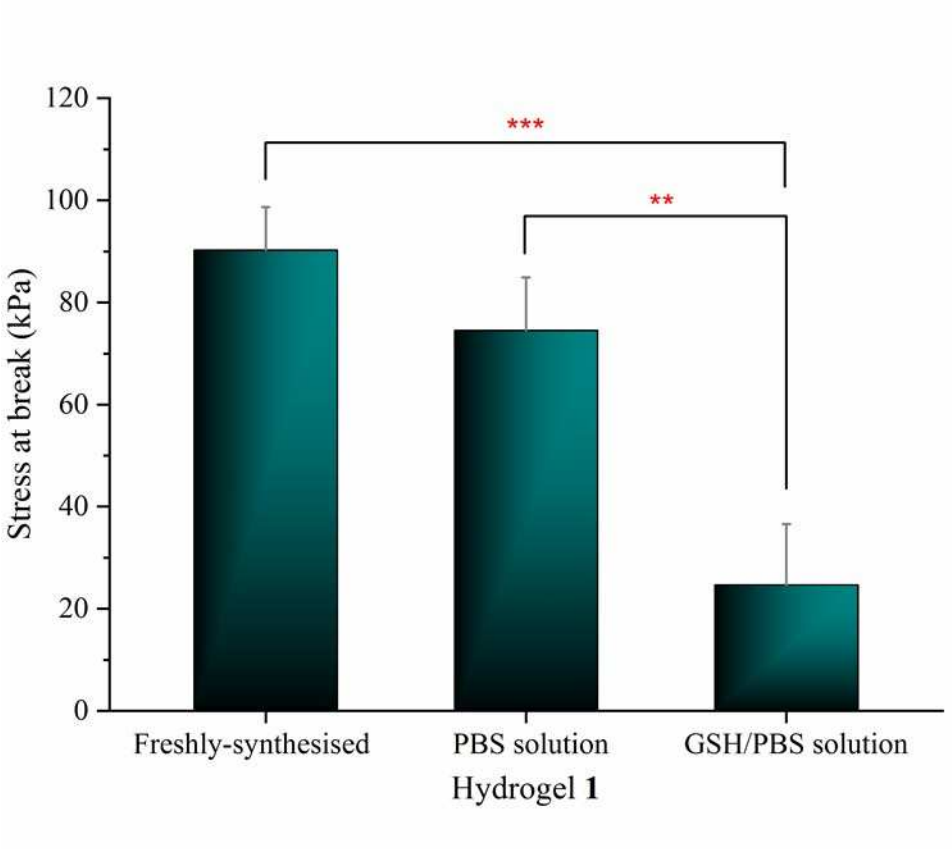

Figure S4. Stress at break measured for hydrogel **1** following synthesis and 48-hour incubation in either PBS or GSH (5 mM)-supplemented PBS buffer solution.

Figure S5. Dissolution of hydrogel **1** after 24-hour immersion in the simulated wound fluid containing 20 mM GSH. The material was too fragile to undergo any form of analysis.

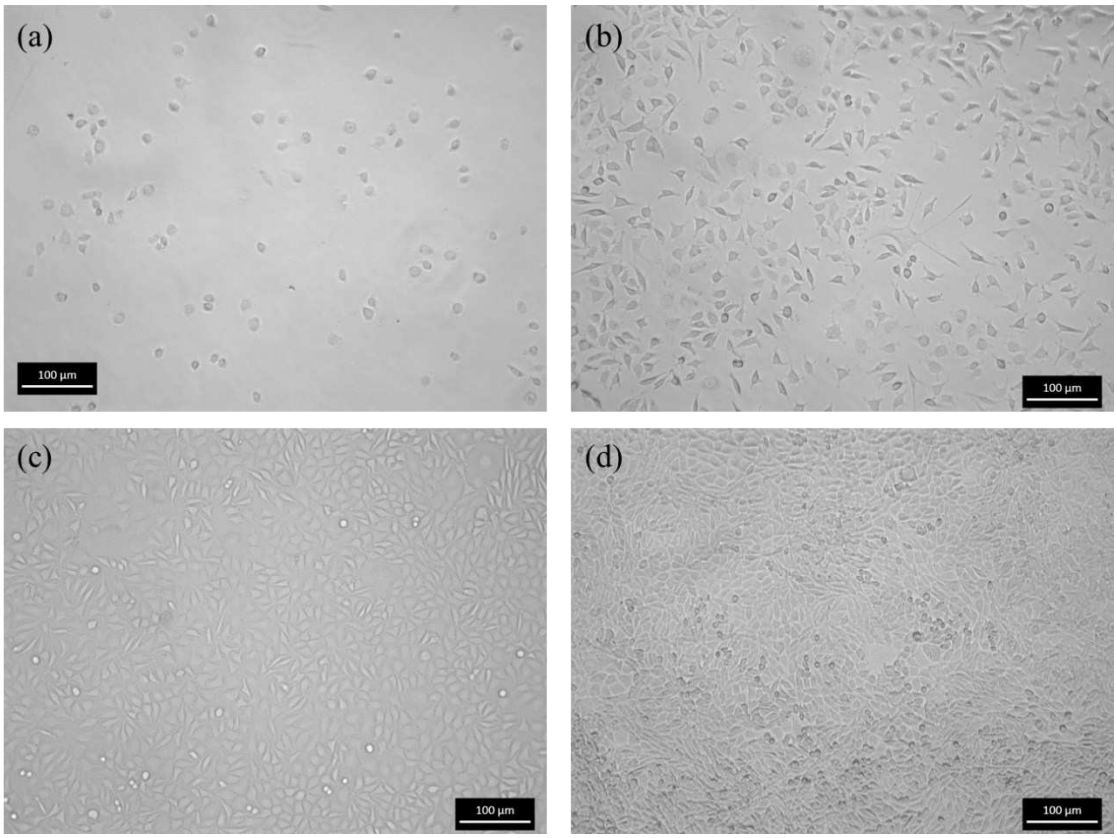

Figure S6. Optical microscopy images of L929 fibroblast cells cultured on TCP for 1 day (a), 3 days (b), 5 days (c) and 7 days (d).

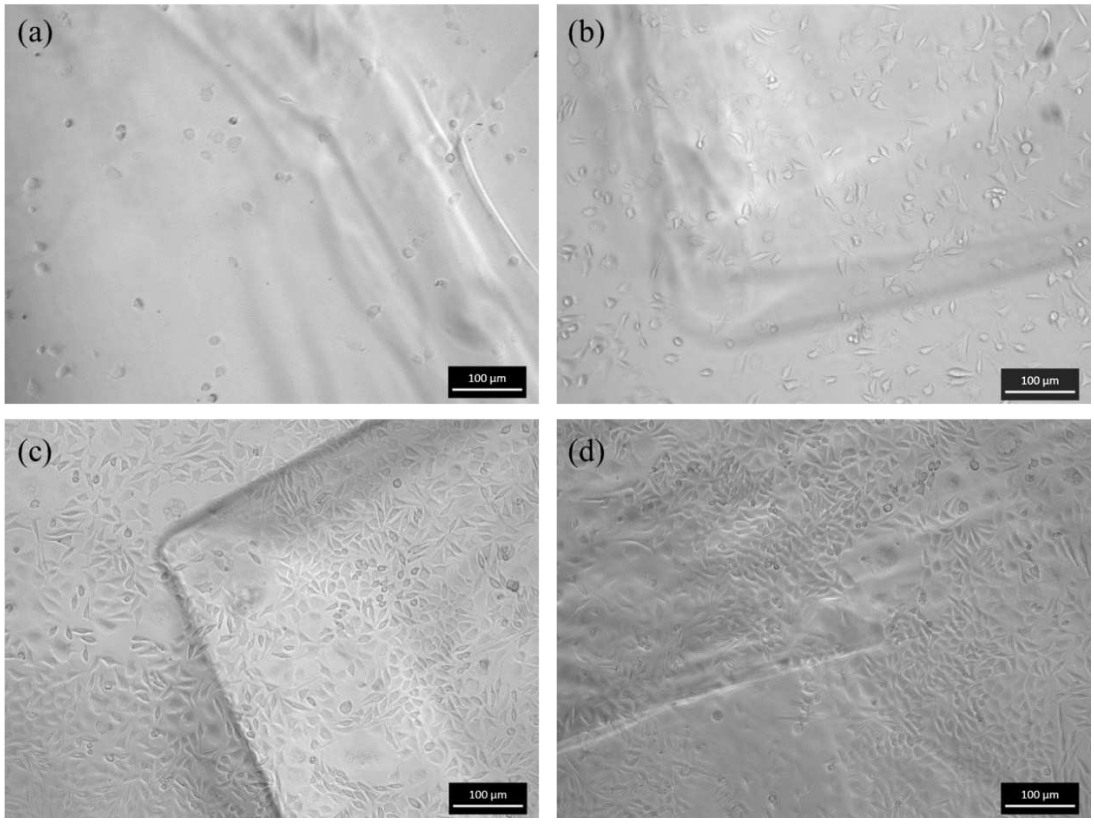

Figure S7. Optical microscopy images of L929 fibroblast cells cultured with hydrogel **1** for 1 day (a), 3 days (b), 5 days (c) and 7 days (d).

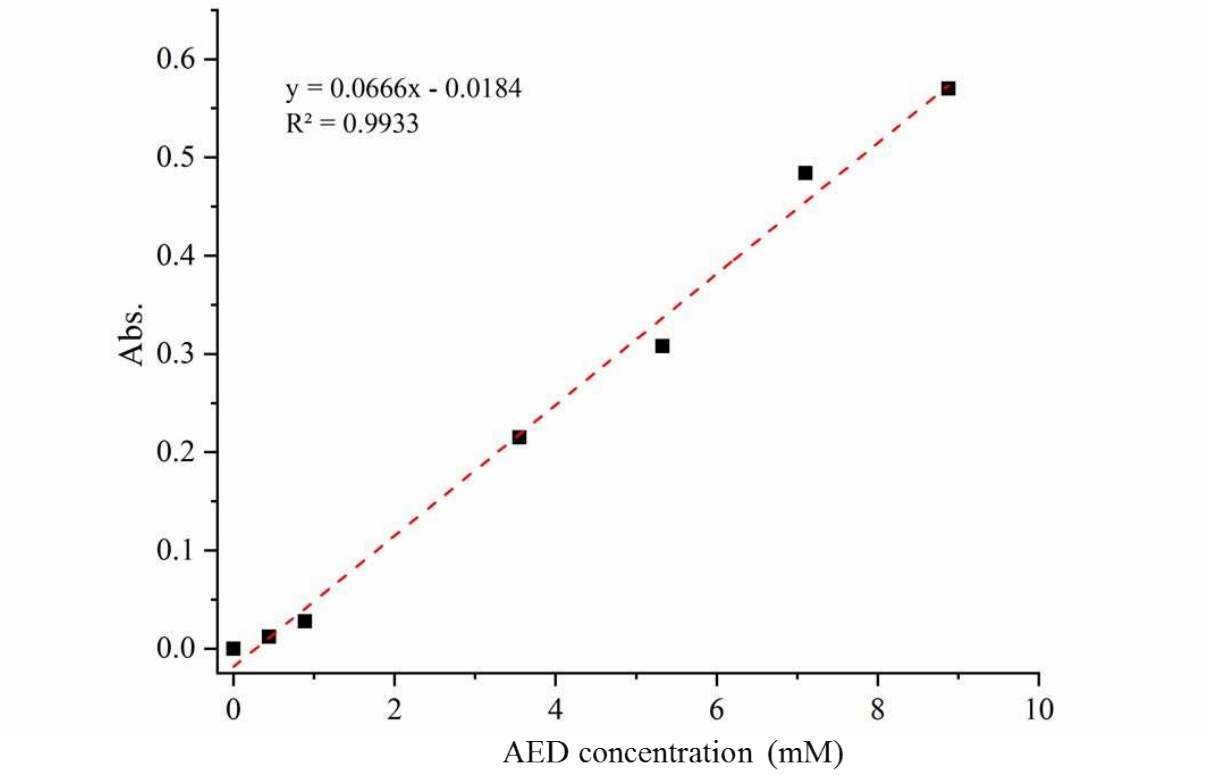

Figure S8. The calibration curve obtained for TNBS analysis.

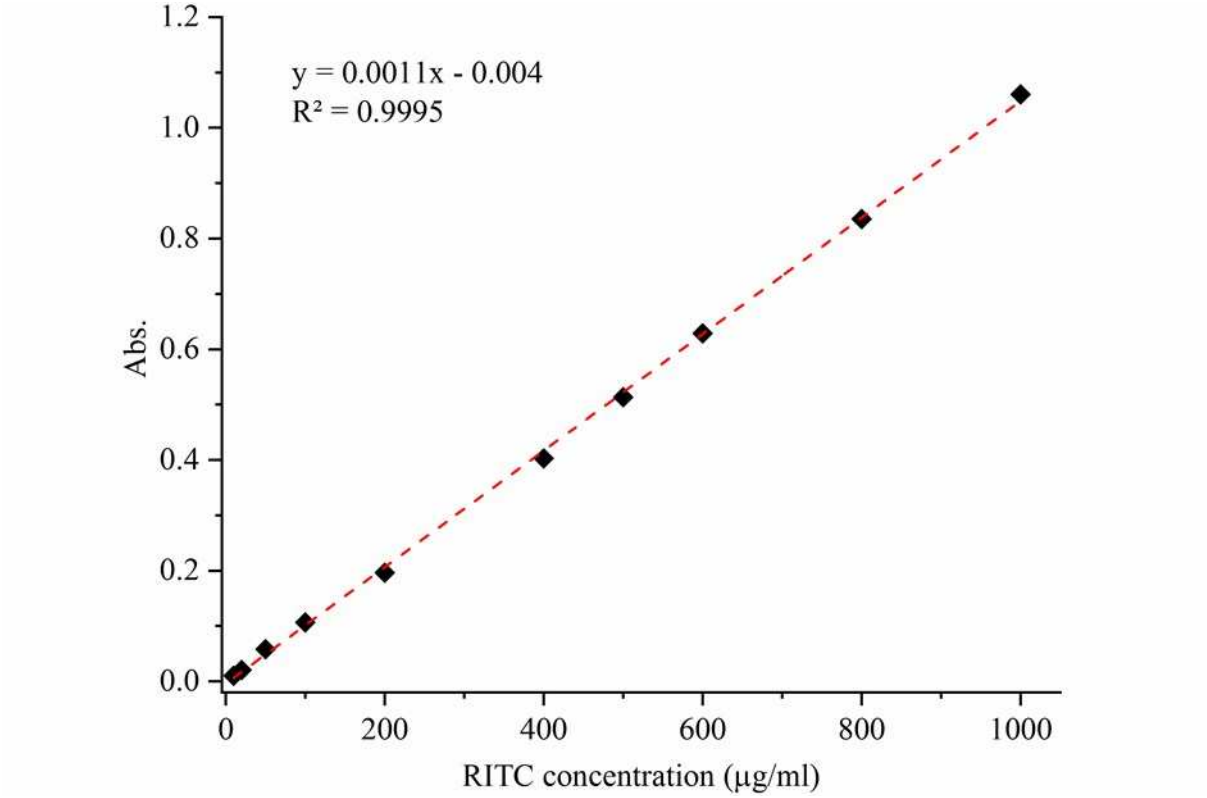

Figure S9. The calibration curve obtained for RITC analysis.

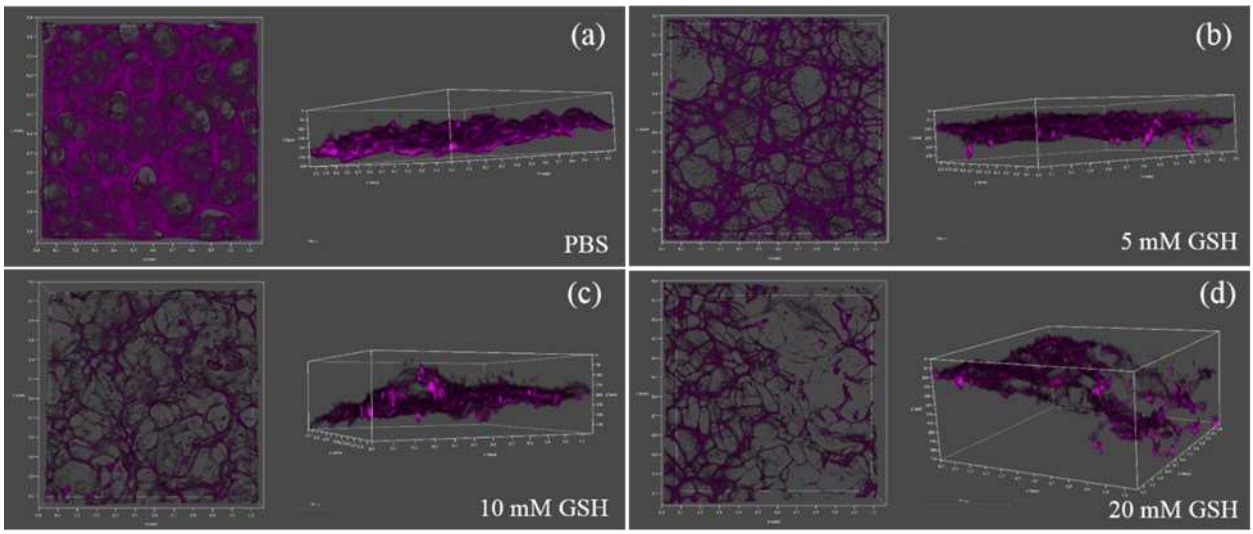

Fig. S10. Confocal images hydrogel **1** loaded with RITC-dextran in (a) PBS solution, and PBS solution supplemented with (b) 5 mM GSH, (c) 10 mM GSH, and (d) 20 mM GSH. The stained polymer network is provided in the left-hand image of each box, and becomes increasingly disintegrated with increased GSH concentration. The depth to which RITC-dextran was able to penetrate the hydrogel was related fluorescence depth profile for each hydrogel is provided in the right-hand image of each box.