Supporting Information

for

Fluorescence sensing of glucose using glucose oxidase incorporated into a fluorophore-containing PNIPAM hydrogel

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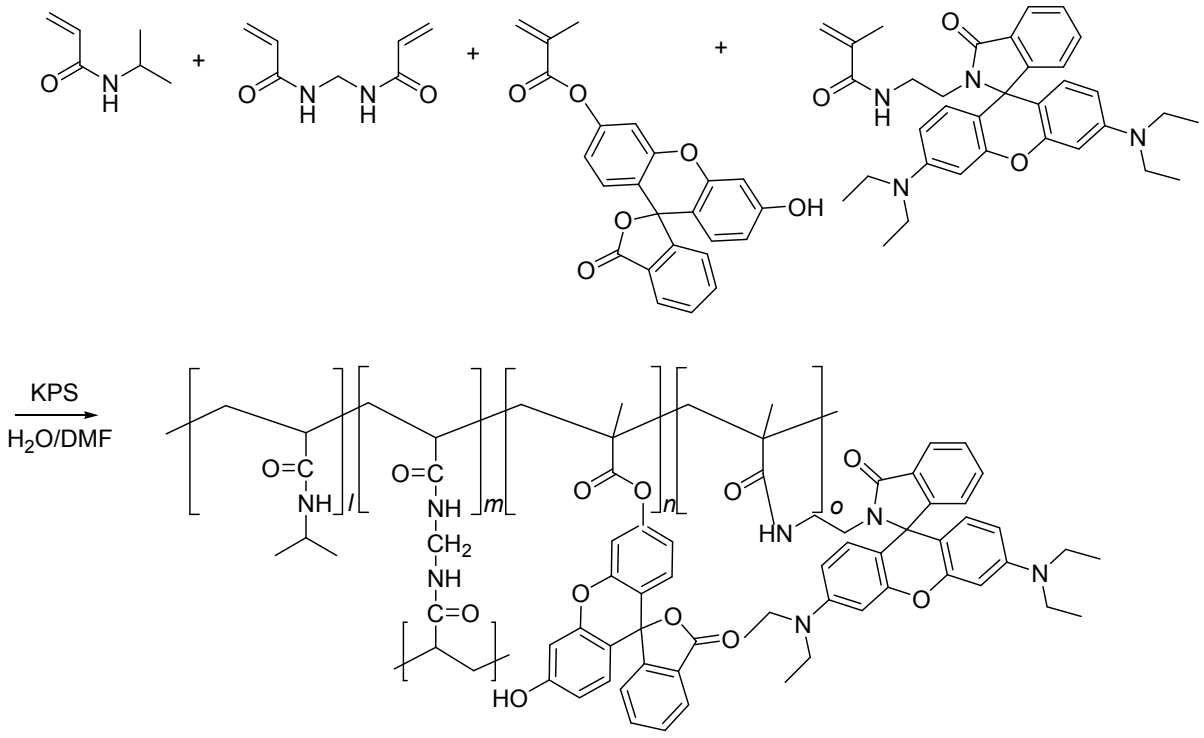
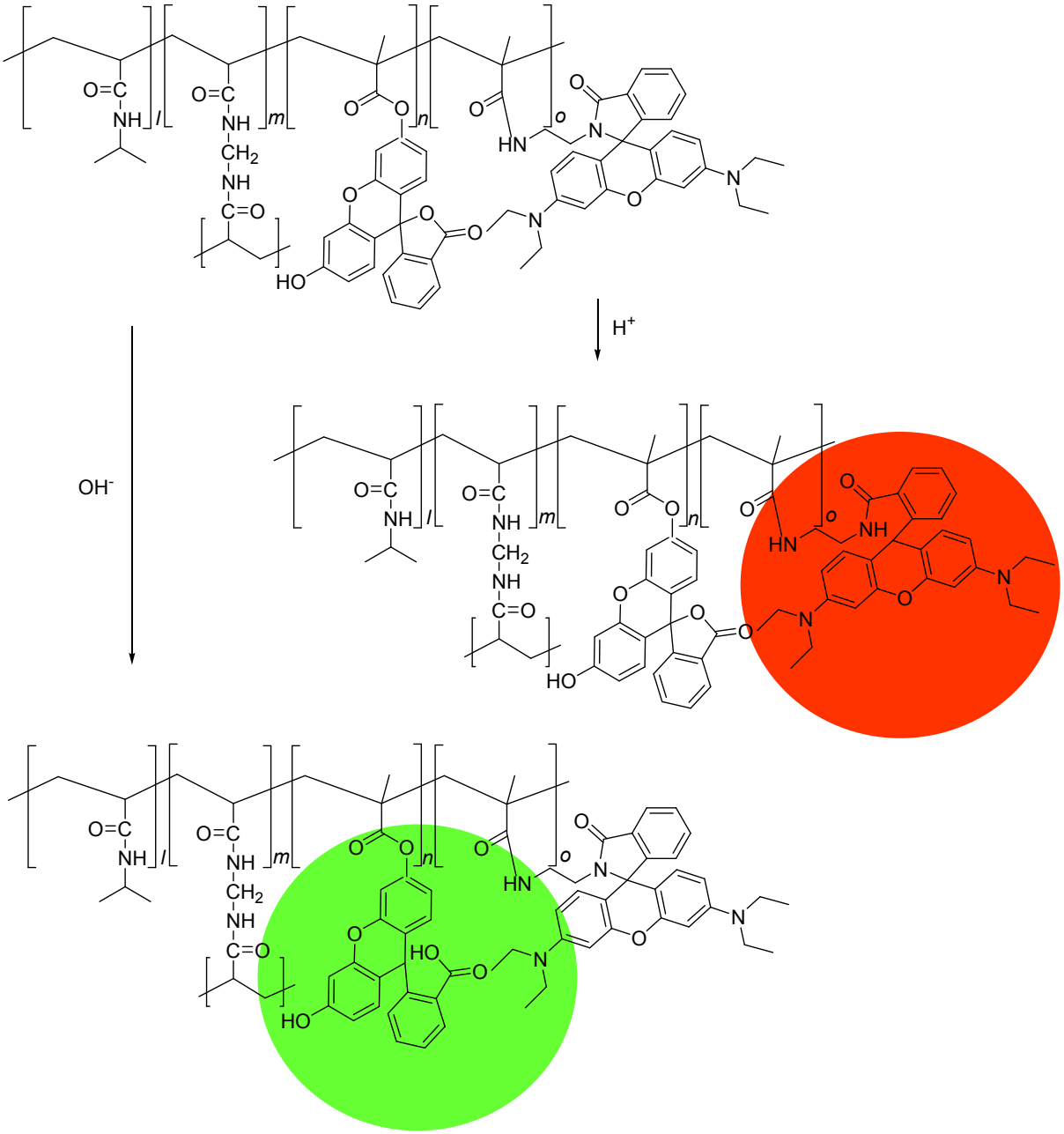
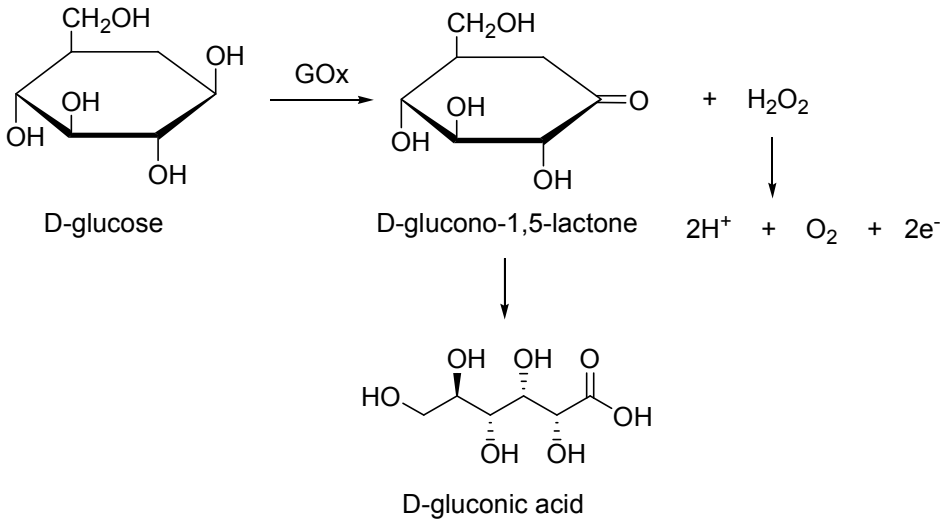


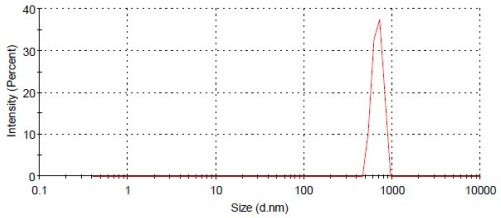
Scheme S1. Synthesis of fluorescent copolymer.



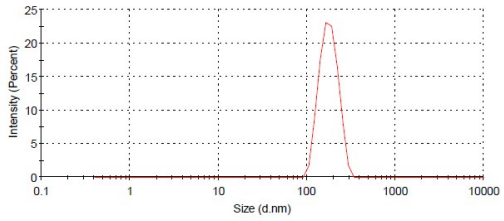
Scheme S2. Structure transformation of fluorescein and rhodamine moieties in the polymer under varied pHs.



Scheme S3. Degradation reaction of D-glucose to form acidic protons by glucose oxidase.

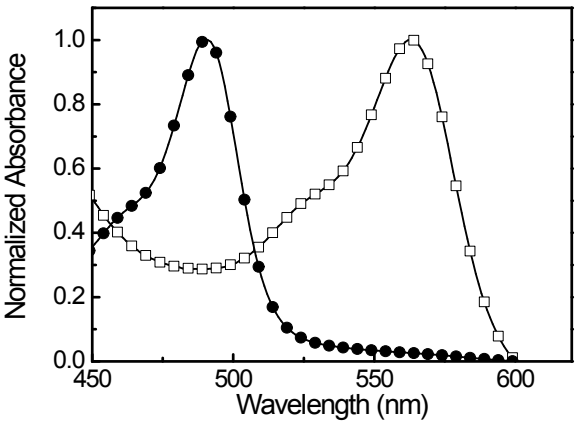


(a)

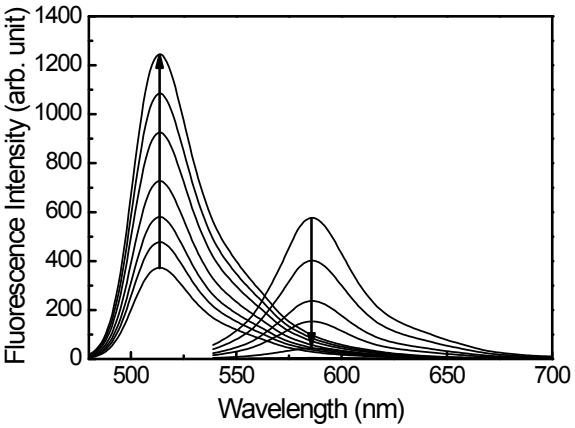


(b)

Figure S1. Size distributions of the hydrogel at (a) 25 ^{o}C and (b) 40 ^{o}C. (determined by DLS).



(a)



(b)

Figure S2. (a) Absorption and (b) fluorescence spectra of the hydrogel (16.4 mg) at various pHs and temperatures in deionized water (10 mL). Arrow direction (at 514 nm): pH 6.3, 7.2, 7.8, 8.4, 9.1, 10.3, and 11.6; (at 586 nm): pH 2.7, 3.4, 3.9, 4.6, and 5.3. Absorption spectra were obtained at 25 °C (□: pH 3.2, ●: pH 12.4). Emission spectra were obtained using excitation wavelength at 490 nm (for green emission) and 560 nm (for red emission), respectively.

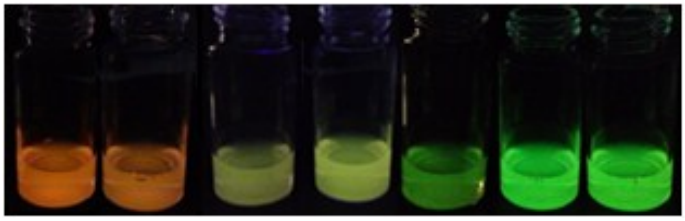


Figure S3. Photographic Images of the hydrogel solutions (16.4 mg/10 mL) at various pHs (from left to right: 3.3; 4.4; 5.8; 7.4; 9.5; 11.8; 12.8) under UV irradiation (365 nm).

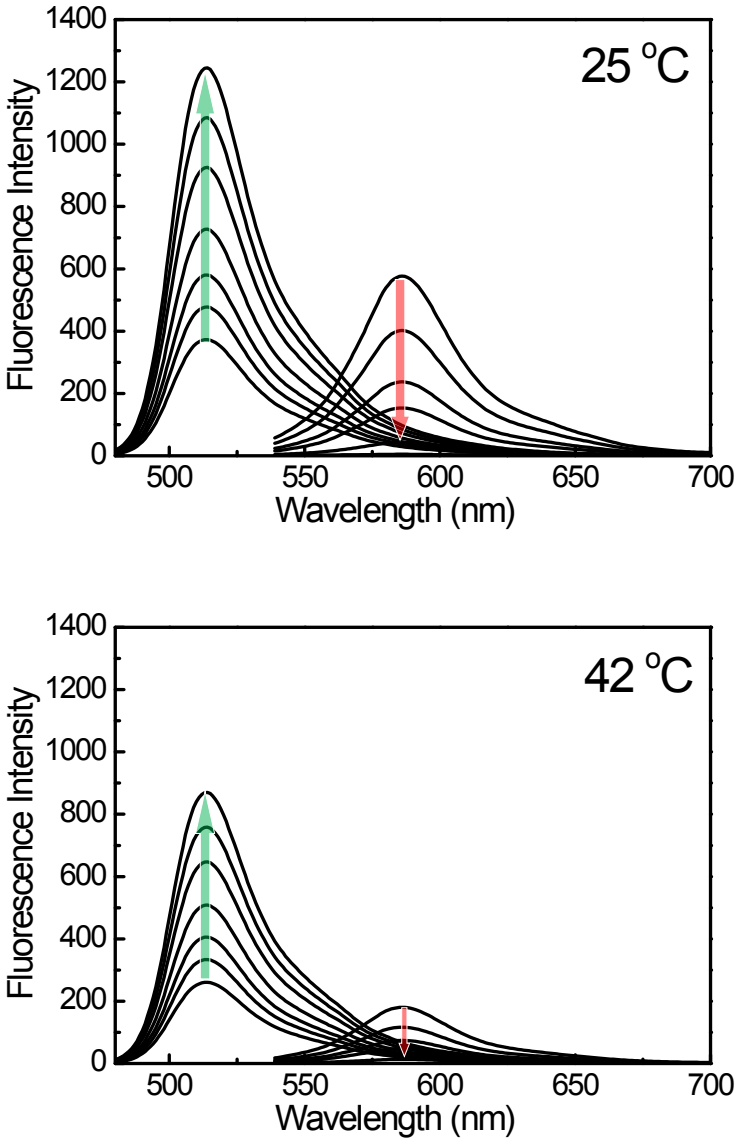


Figure S4. Emission spectra of the hydrogel (16.4 mg) at various pHs and temperatures in deionized water (10 mL). Arrow direction (green emission): pH 6.3, 7.2, 7.8, 8.4, 9.1, 10.3, and 11.6; (red emission): pH 2.7, 3.4, 3.9, 4.6, and 5.3. Emission spectra were obtained using excitation wavelengths at 490 nm (for green emission) and 560 nm (for red emission).