Electronic Supplementary Material (ESI) for Polymer Chemistry.

Supplementary information

Synthesis of an Injectable, Self-Healable and Dual Responsive Hydrogel for Drug Delivery and 3D Cell Cultivation

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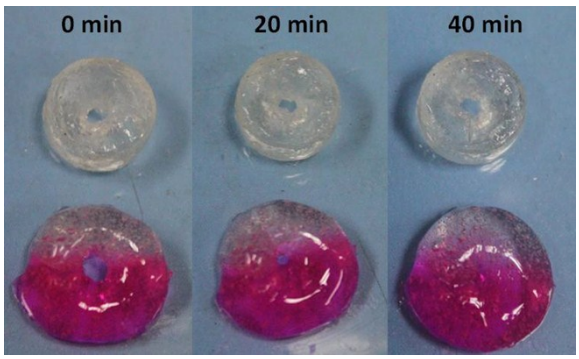

Figure S1 Appearance change of a gelatin hydrogel (up) and the united dynamic hydrogel (down) after being punched a hole at different times.

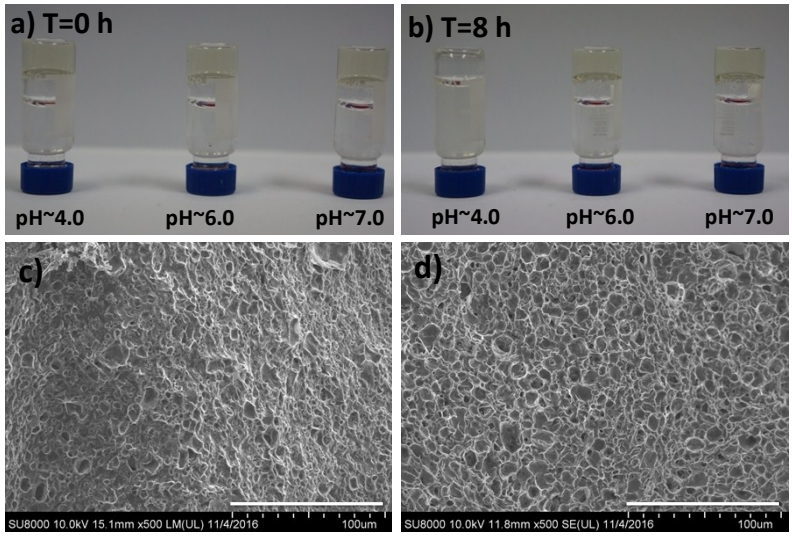

Figure S2 Photos of hydrogels immersed in buffers a) at 0 h and b) after 8 h, and SEM photos of freeze-dried hydrogels after immersion in buffers c) pH~6.0 and d) pH~7.0 for 8 h (scale bars 100 μm).

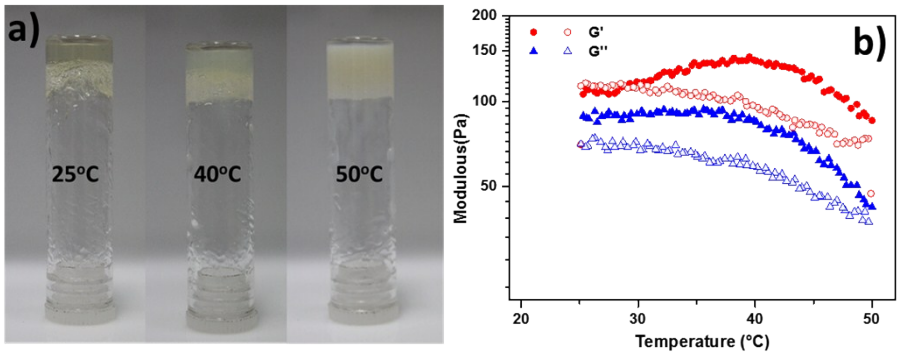

Figure S3 Temperature responsive property of transparency a) and b) modulus change of the hydrogel under acidic conditions (pH~5).

Table S1 Release kinetic data for different systems by fitting release data to the Ritger-Peppas equation (*n*: diffusion exponent; *k*: kinetic constant; R^2: correlation coefficient).

Conditions		Ritger-Peppas model		
Temp.	/ pH	*n*	*k*	R^2
Rhodamine B Release System				
25°C	4.5	0.794	0.142	0.989
	6.2	0.571	0.064	0.995
	7.4	0.579	0.059	0.997
37 °C	4.5	0.871	0.227	0.998
	6.2	0.784	0.095	0.975
	7.4	0.533	0.064	0.998
40 °C	4.5	0.765	0.252	0.997
	6.2	0.648	0.185	0.999
	7.4	0.553	0.083	0.993
Cisplatin Release System				
37 °C	4.5	0.714	0.166	0.980
	6.2	0.728	0.034	0.977
	7.4	0.686	0.024	0.996

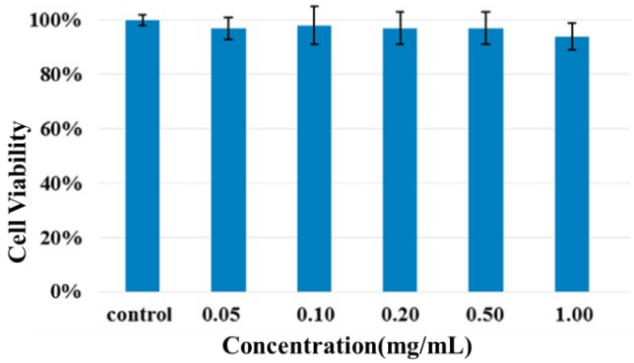

Figure S4 Cell viability of DF poly(NIPAM-co-AA) polymer solutions under different concentrations on HeLa cells.