

## Article

# pH-Sensitive Poly(acrylic acid)-g-poly(L-lysine) Charge-Driven Self-Assembling Hydrogels with 3D-Printability and Self-Healing Properties

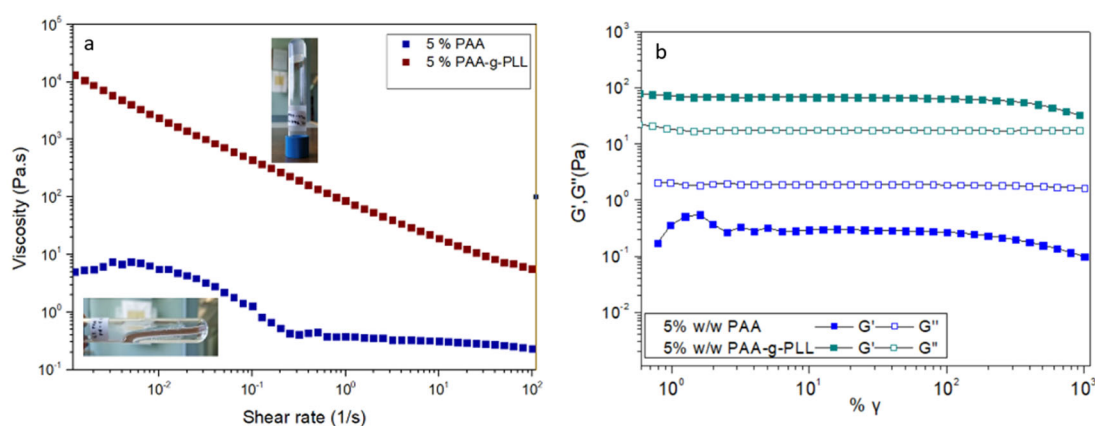
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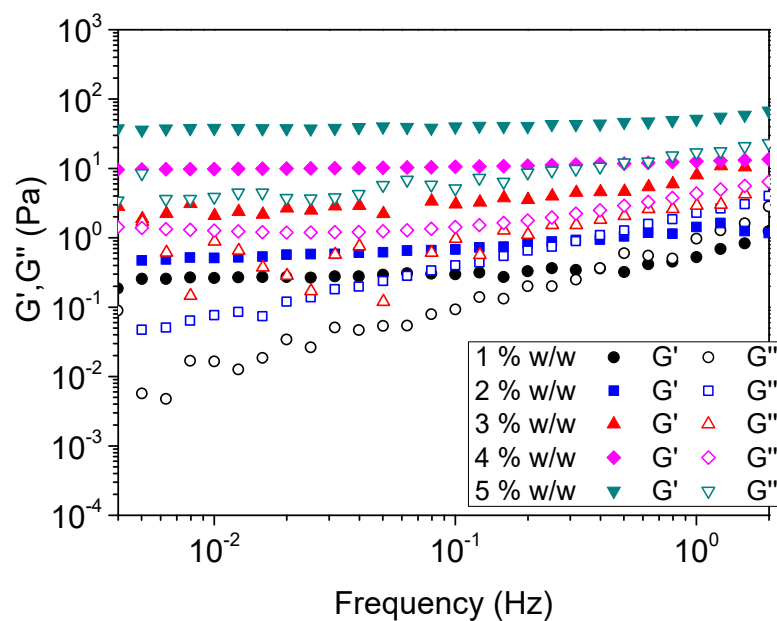
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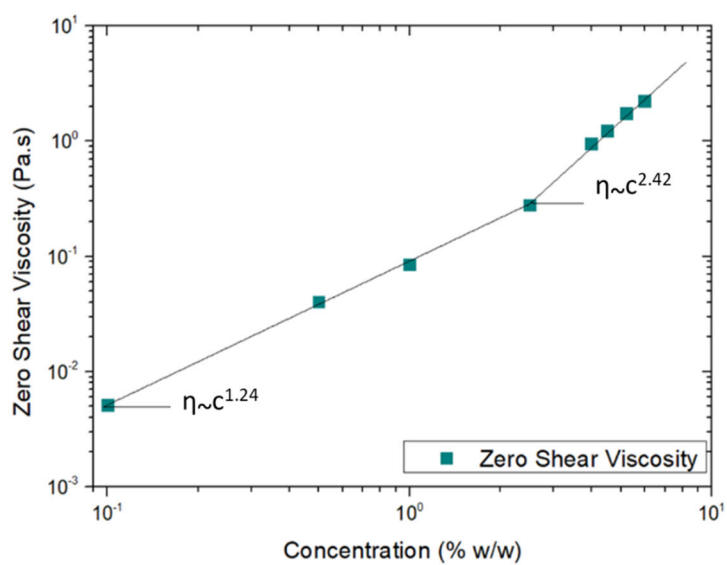
## Supporting Information



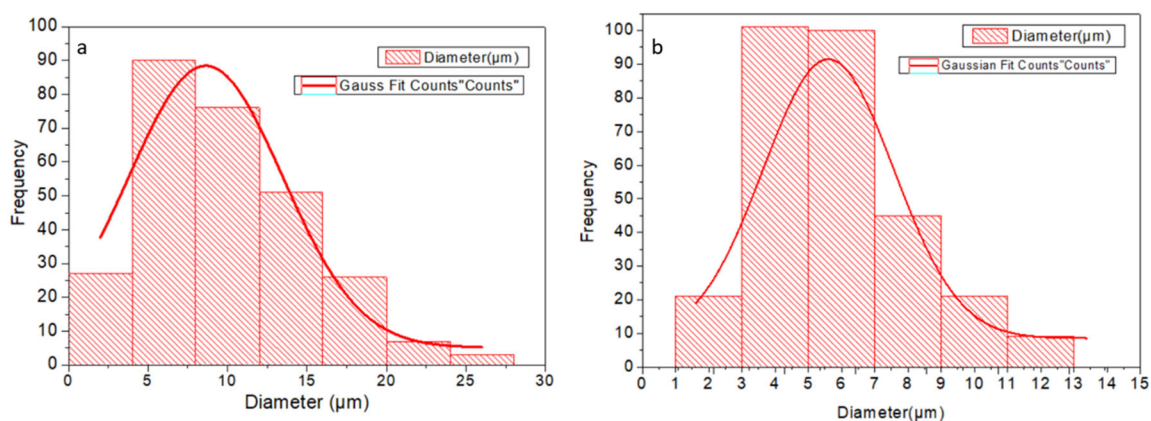
**Figure S1.** Viscosity of aqueous samples of pure PAA (blue, squares) and graft- copolymer PAA-g-PLL (red, squares) versus shear rate in same polymer concentration (5 % w/w) **(a)** their corresponding strain sweeps at 1 Hz and 25 °C **(b)** The digital photos (inset of a) indicate the flow of the solution pure PAA and the free-standing gel PAA-g-PLL and punctuate the charge-driven self-assembling network formation.



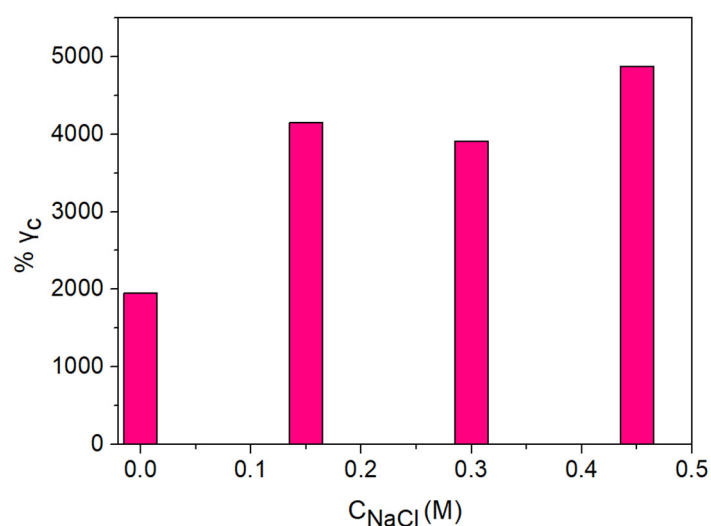
**Figure S2.**  $G'$  and  $G''$  as a function of frequency of PAA-g-PLL aqueous solutions (pH 7.4) of different concentrations (as indicated).



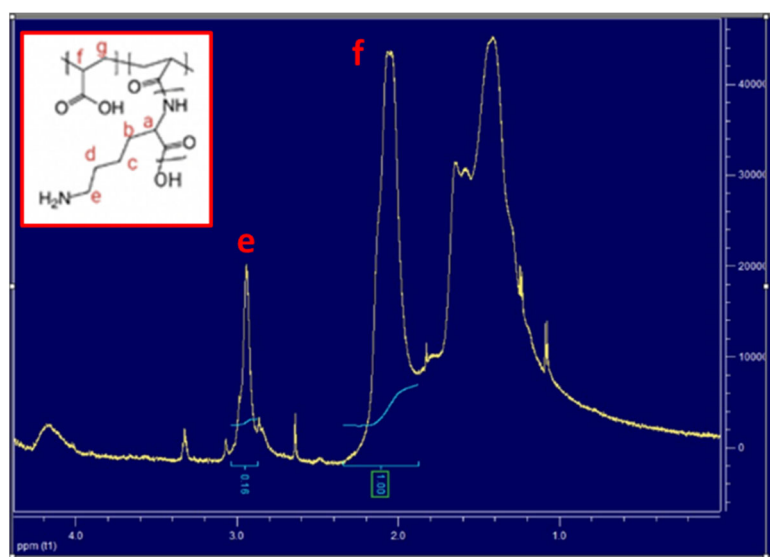
**Figure S3.** Zero shear viscosity of aqueous solutions of PAA precursor as a function of concentration at pH= 7.4 and 25 °C.



**Figure S4.** Pore diameter distribution of dried samples PAA-g-PLL ( $C_p = 5$  wt %) at two different pH with its corresponding Gaussian fitting (a) 5.5 (b) 7.4.



**Figure S5.**  $\gamma_c$  (from strain sweep data) versus NaCl concentration in aqueous solutions of PAA-g-PLL ( $C_p = 5$  % wt) at pH=7.4.



**Figure S6.** <sup>1</sup>H NMR spectra of PAA-g-PLL. The mol percentage of the copolymer was calculated from the e (CH<sub>2</sub>/PLL) and f (CH/PAA) bands.