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Effect of salt on dynamic mechanical behaviors of polyampholyte hydrogels

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Figure S1. The appearance of equilibrated PA-p and PA-c (**a**) in water, and (**b**) in $C_{\text{NaCl}} = 4$ M solution. For (b), we put three pieces of salt-free PA gels shown in (a) into 4 M NaCl solution. The mesh size of the background lattice is 5 mm. It shows that the PA-p can completely dissolve into 4 M NaCl solution, while the PA-c swells dramatically.



Figure S2. Comparison between the norm of the complex shear modulus $|G^*|$ against $a_{salt}\omega$ from rheology test and the Young's modulus *E* against $2\pi a_{salt}\varepsilon$ from uniaxial tensile test for (a) PA-p and (b) PA-c. The $|G^*|$ and *E* are rescaled by volume swelling ratio Q_v to normalize the strand density per unit volume taking the salt-free gels as a reference state. Here, $|G^*| = (G'^2 + G''^2)^{0.5}$, where *G'* and *G''* are storage modulus and loss modulus, respectively. The relation $E=3|G^*|$ for incompressible material is adopted. The $Q_v E$ vs. $2\pi a_{salt}\varepsilon$ curve overlap with its counterpart $3Q_v|G^*|$ vs $a_{salt}\omega$ curve, indicating that the tensile strain rate ε is correlated to the angular frequency ω by $\omega=2\pi\varepsilon$.