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Supplementary Materials for

Effect of salt on dynamic mechanical behaviors of polyampholyte hydrogels

Xueyu Li^{1,#}, Feng Luo^{1,2,#,}, Tao Lin Sun^{1,3}, Kunpeng Cui^{4,5}, Reina Watanabe⁶, Tasuku Nakajima^{1,4}, and Jian Ping Gong^{1,4,*}*

¹Laboratory of Soft & Wet Matter, Faculty of Advanced Life Science, Hokkaido University, Kita 21, Nishi 11, Kita-ku, Sapporo 001-0021, Japan

²College of Polymer Science and Engineering, State Key Laboratory of Polymer Materials Engineering, Sichuan University, Chengdu 610065, China

³South China Advanced Institute for Soft Matter Science and Technology, South China University of Technology, Guangzhou 510640, China

⁴Institute for Chemical Reaction Design and Discovery (WPI-ICReDD), Hokkaido University, Kita 21, Nishi 11, Kita-ku, Sapporo 001-0021, Japan

⁵Department of Polymer Science and Engineering, University of Science and Technology of China, Hefei 230026, China

⁶Laboratory of Soft & Wet Matter, Division of Soft Matter, Graduate School of Life Science, Kita10, Nishi 8, Kita-ku, Sapporo, Hokkaido 060-0810, Japan

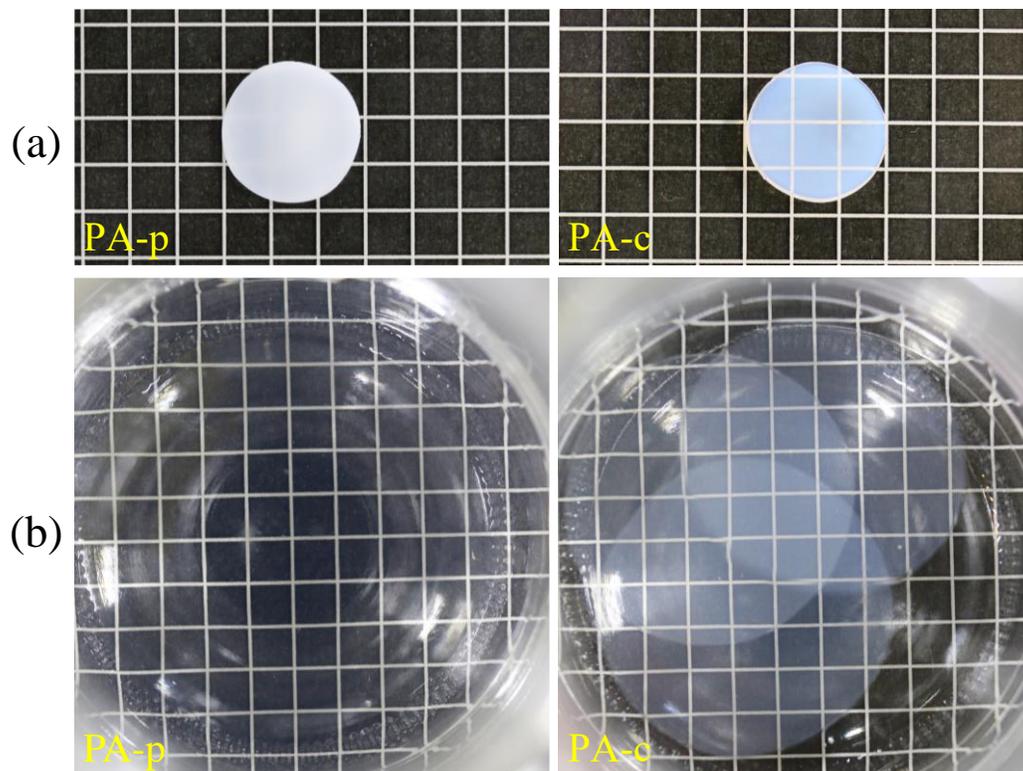


Figure S1. The appearance of equilibrated PA-p and PA-c (a) in water, and (b) in $C_{\text{NaCl}} = 4$ M solution. For (b), we put three pieces of salt-free PA gels shown in (a) into 4 M NaCl solution. The mesh size of the background lattice is 5 mm. It shows that the PA-p can completely dissolve into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

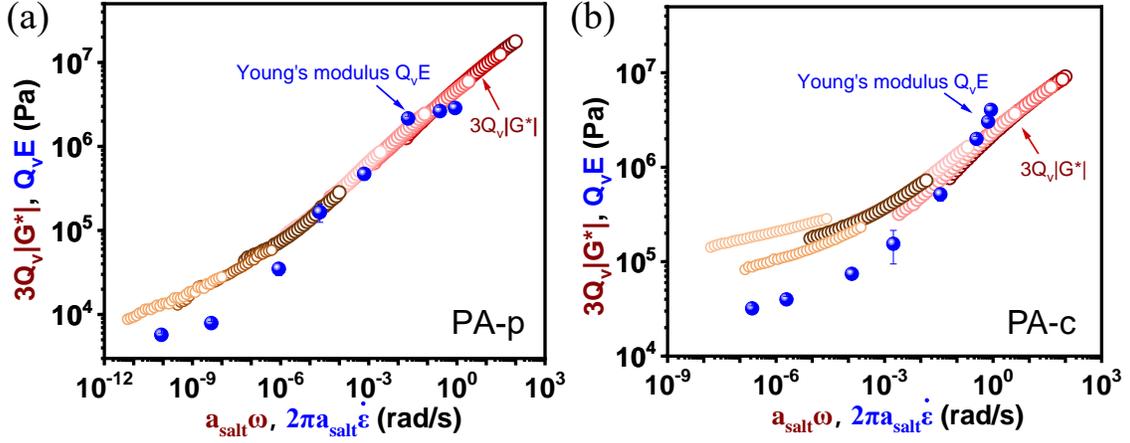


Figure S2. Comparison between the norm of the complex shear modulus $|G^*|$ against $a_{\text{salt}}\omega$ from rheology test and the Young's modulus E against $2\pi a_{\text{salt}}\dot{\epsilon}$ from uniaxial tensile test for (a) PA-p and (b) PA-c. The $|G^*|$ and E are rescaled by volume swelling 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. $2\pi a_{\text{salt}}\dot{\epsilon}$ curve overlap with its counterpart $3Q_v|G^*|$ vs $a_{\text{salt}}\omega$ curve, indicating that the tensile strain rate $\dot{\epsilon}$ is correlated to the angular frequency ω by $\omega=2\pi\dot{\epsilon}$.