Electronic Supplementary Material (ESI) for Soft Matter.

Micromechanical Characterization of Soft, Biopolymeric Hydrogels: Stiffness, Resilience, and Failure

Supplementary Information

Shruti Rattan[1,+], Linqing Li[2,+], Hang Kuen Lau[2,+], Alfred J. Crosby[1,*] and Kristi L. Kiick[2,3,4,*]

[1]Polymer Science and Engineering Department, University of Massachusetts Amherst, 120 Governors Drive, Amherst, Massachusetts, 01003, USA; [2] Department of Materials Science and Engineering, University of Delaware, 201 DuPont Hall, Newark, Delaware, 19716, USA; [3]Department of Biomedical Engineering, University of Delaware, Newark, Delaware, 19716, USA; [4]Delaware Biotechnology Institute, 15 Innovation Way, Newark, Delaware, 19711, USA.

+These authors contributed equally to this work.

*Corresponding authors: Alfred J. Crosby: crosby@mail.pse.umass.edu and Kristi L. Kiick: kiick@udel.edu

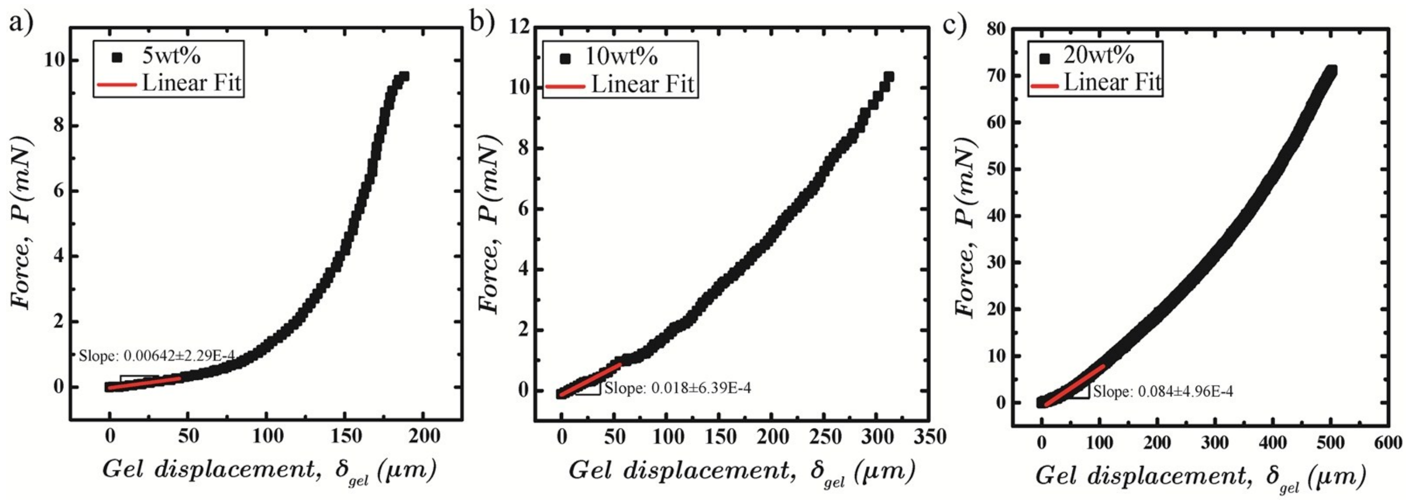

Figure S1 (a-c) Example linear regression fits of the force-displacement curves obtained from microindentation for 5wt%, 10wt%, and 20wt% RLP hydrogels. The fits were performed up to ~10% strain for each polypeptide concentration. The inverse of the slopes of these curves represent the compliance, C. Figures present representative curves, therefore, plotted curves do not necessarily correspond exactly with data shown in Figure 3(b).

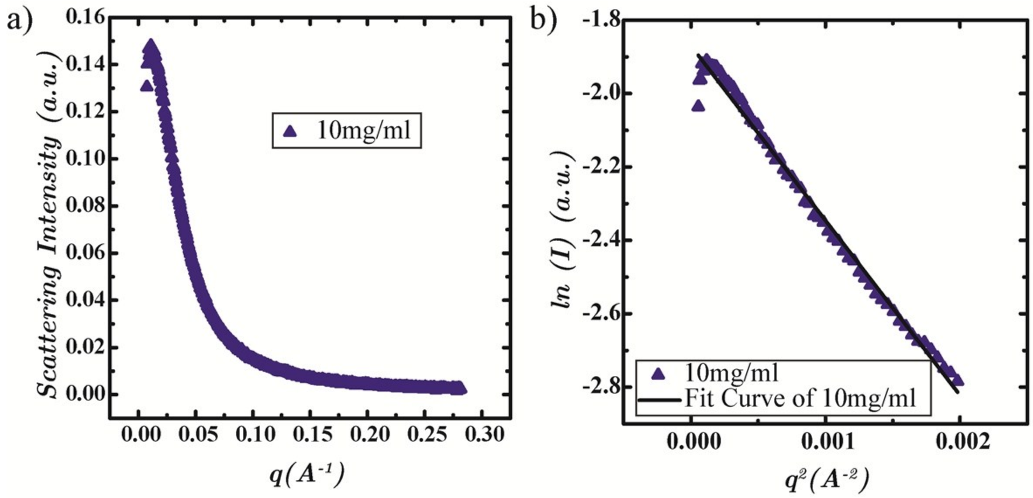

Figure S2 Scattering intensity of RLP from SAXS a) Scattering intensity profile and b) Guinier plot to determine the R_g of RLP.

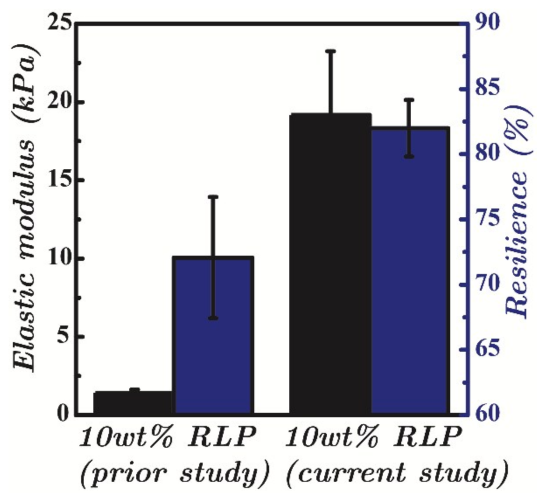

Figure S3 A comparison of small-strain elastic moduli and resilience obtained from microindentation for 10wt% RLP hydrogels synthesized in a prior study with a more active crosslinker and, 10wt% RLP hydrogels used in this study.