Supplementary Material (ESI) for *Soft Matter*

Supplementary Information for:

"Investigating the Mechanical Properties of Multiphoton Fabricated Protein Hydrogels Using Environmental Atomic Force Microscopy"

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Evaluating the Quality of Protein Mirocantilevers: Fitting the Cantilever Beam Model to Cantilever Spring Constant Data

Multiphoton fabricated protein microcantilevers were attached to a protein block that acts to clamp the cantilever. However, the microfabrication process can incur some degree of variability with a potential to create defects in the beam/block interface, leading to poor clamping. In order to test the quality of our cantilevers, we measured the dependence of the cantilever spring constant on cantilever length. Ideally, this dependence should follow Eq. 1 (main text). Figure S1 shows both the measured data and the expected dependence. In all cases, only slight deviation from Eq. 1 is observed. This deviation is strongest for the stiffest cantilevers, suggesting the clamping is not ideal for these structures, and the reported modulus value may be slightly less than the actual modulus.

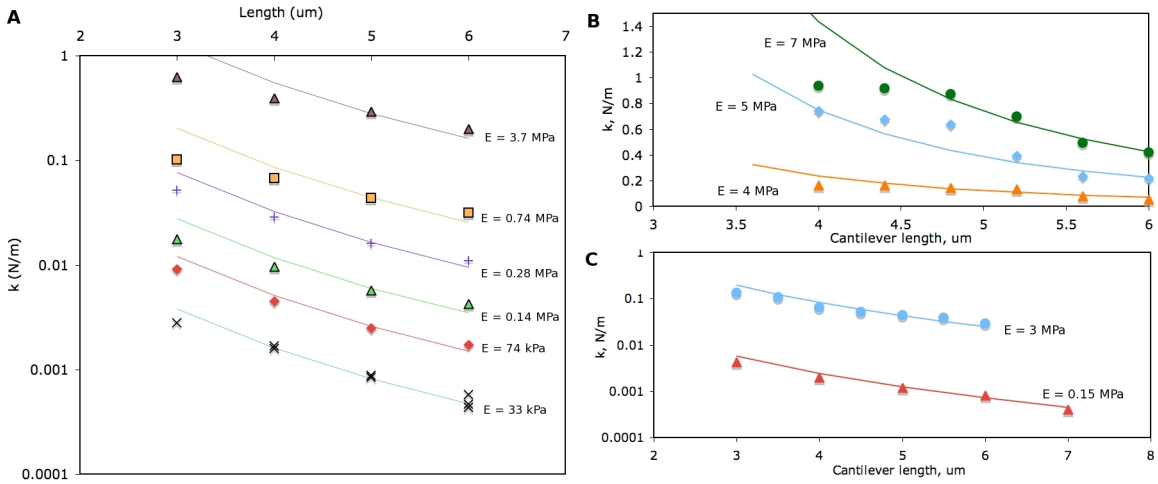

Figure S1 The spring constant of an ideal cantilever is expected to follow Eq. 1 (main text). Here we show that bovine serum albumin (A) lysozyme (B) and avidin (C) microcantilevers follow the theoretical model (solid lines).

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