Supporting Information for the Article Mobility-Enhancing Coatings for Vitreoretinal Surgical Devices: Hydrophilic and Enzymatic Coatings Investigated by Microrheology

Juho Pokki,[*,†] Jemish Parmar,[†] Olgaç Ergeneman,[†] Hamdi Torun,[‡,§] Miguel Guerrero,[¶] Eva Pellicer,[¶] Jordi Sort,[¶,‖] Salvador Pané,[*,†] and Bradley J. Nelson[†]

Institute of Robotics and Intelligent Systems, ETH Zurich, Zurich, Switzerland, Department of Electrical and Electronics Engineering, Boğaziçi University, Istanbul, Turkey, and Departament de Física, Universitat Autònoma de Barcelona, Bellaterra, Spain

E-mail: jpokki@ethz.ch; vidalp@ethz.ch

[*]To whom correspondence should be addressed
[†]Institute of Robotics and Intelligent Systems, ETH Zurich, Zurich, Switzerland
[‡]Department of Electrical and Electronics Engineering, Boğaziçi University, Istanbul, Turkey
[¶]Departament de Física, Universitat Autònoma de Barcelona, Bellaterra, Spain
[§]Center for Life Sciences and Technologies, Boğaziçi University, Istanbul, Turkey
[‖]Institució Catalana de Recerca i Estudis Avançats (ICREA), Barcelona, Spain

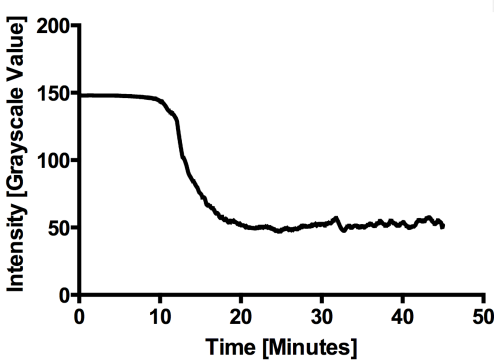
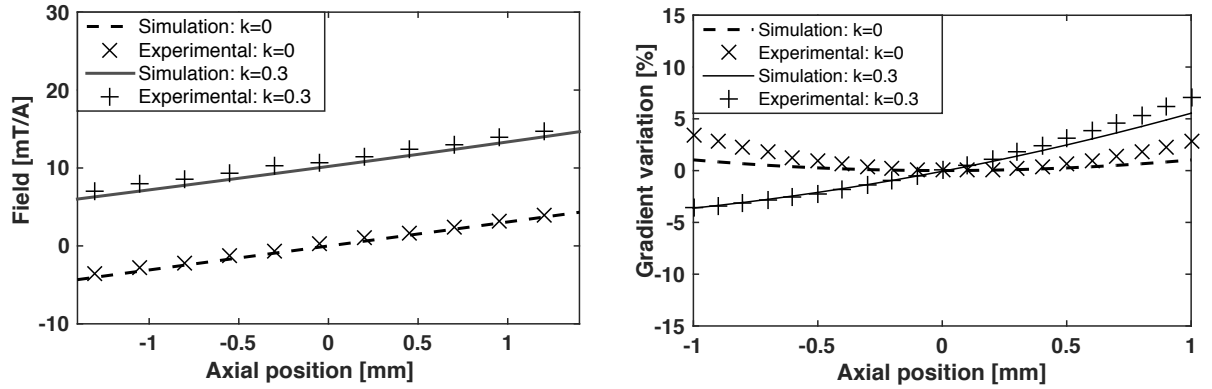


Figure S1: Collagen gel polymerization over time. The collagen sample was kept under a microscope (5x magnification) connected to a camera (Optronis CamRecord CL600x2) during polymerization. Greyscale camera images were recorded at 2 fps for 45 min. The average intensity of all pixels in the images with bitmap format were calculated.



(a) Magnetic field gradient generated by applying i_{gradient}=1A. The field at the center was adjusted by k. Remark: the fields are scaled by i_{gradient}.

(b) The gradient variation around the center of magnetic workspace (Axial position 0 mm) where the gradient was 3.0 $\frac{\text{T}}{\text{m}}$ for k=0 and k=0.3.

Figure S2: Magnetic fields and field gradients superpositioned.

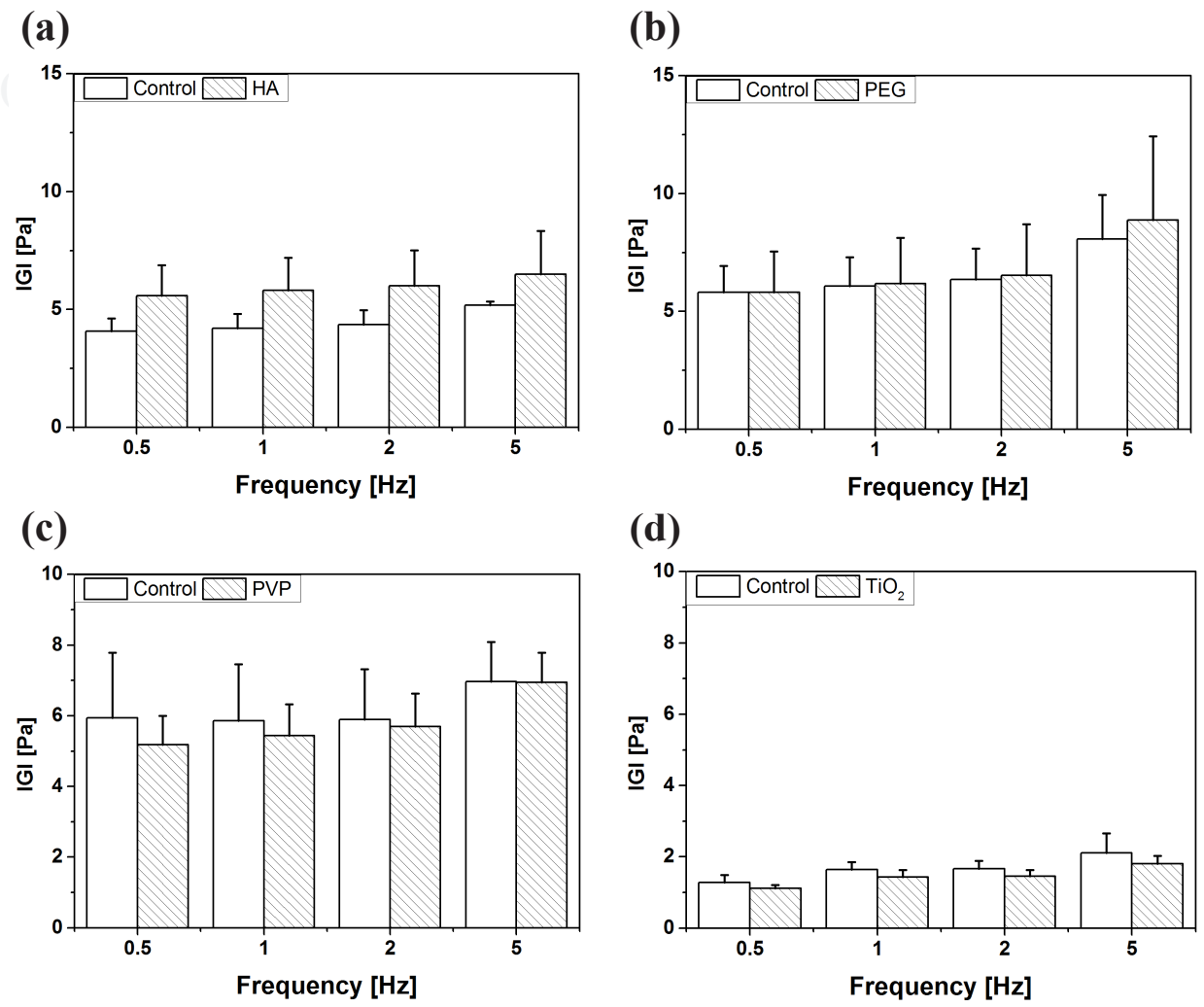
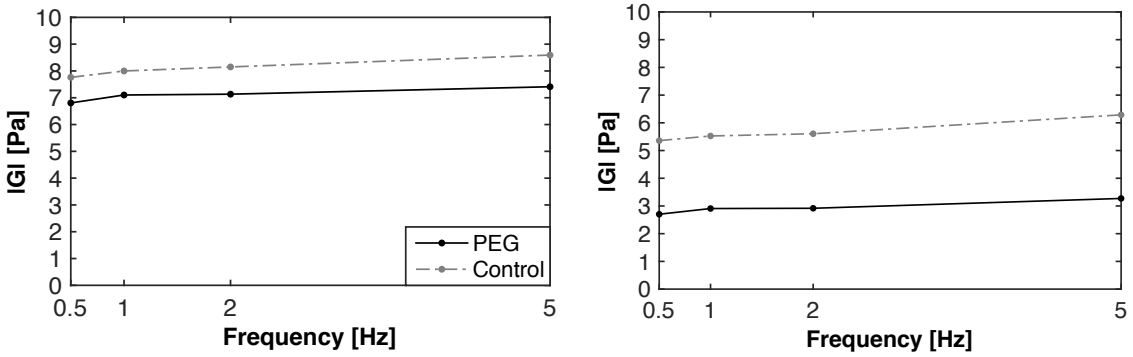
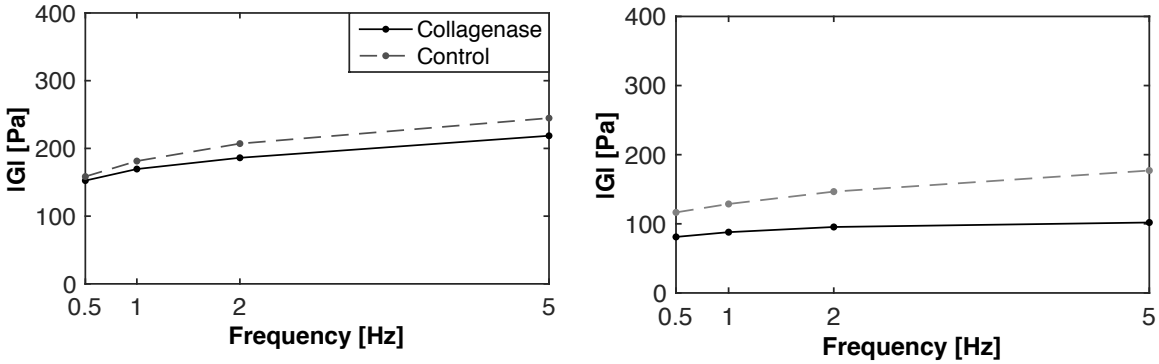


Figure S3: The mean |G| measured in *ex vivo* porcine vitreous by probes coated by (a) HA (n=3), (b) PEG (n=5), (c) PVP (n=7), and (d) TiO_2 (n=4). The SeM values are in error bars.



(a) Example 1. (b) Example 2.

Figure S4: |G| measured in *ex vivo* porcine vitreous by PEG-coated probes. The examples 1-2 demonstrate experimental variation that is affected by individual differences of the vitreous in different *ex vivo* porcine eyes.



(a) Example 1. (b) Example 2.

Figure S5: |G| measured in collagen gel by collagenase-coated probes. The examples 1-2 demonstrate experimental variation that is affected by individual differences of the collagen gel samples.

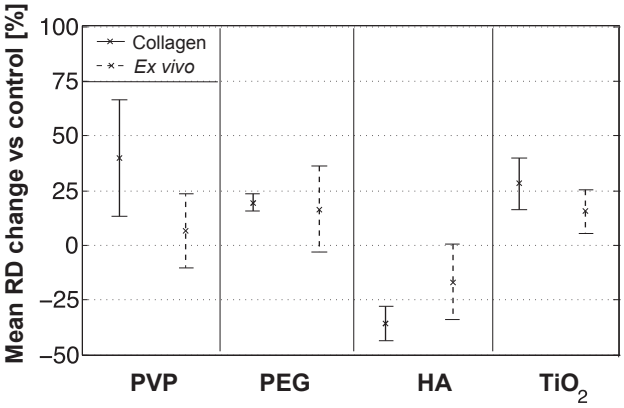


Figure S6: Probe-coating-related mobility enhancement illustrated by the mean RD values and 95% confidence intervals in error bars.