Supporting information

Micro and nano-patterned silk substrates for antifouling applications

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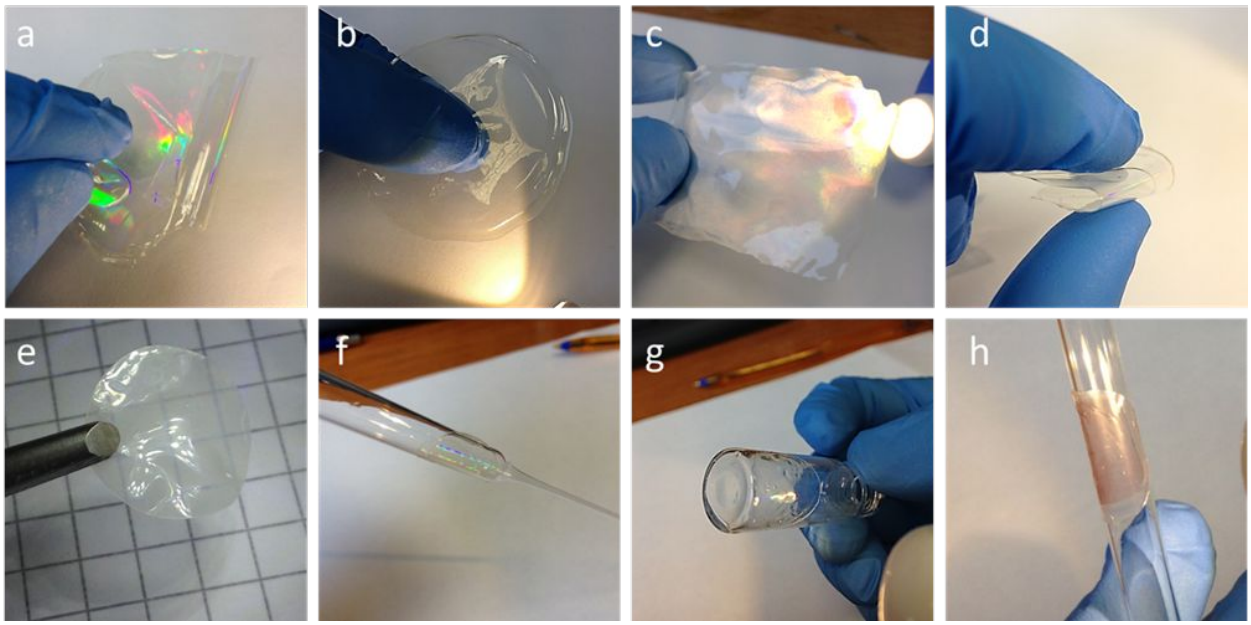

Figure S1. (a-c) nano stripes, µwells 2, µwells 1 films in dry form, before cutting. Representative photographs showing the micro/nano patterned silk substrates bended in dry form (d), cut in 18 mm disks (e) and bended in wet form around different curved surfaces, in absence (f,g) or in presence of a thin P3HT layer on top (h).

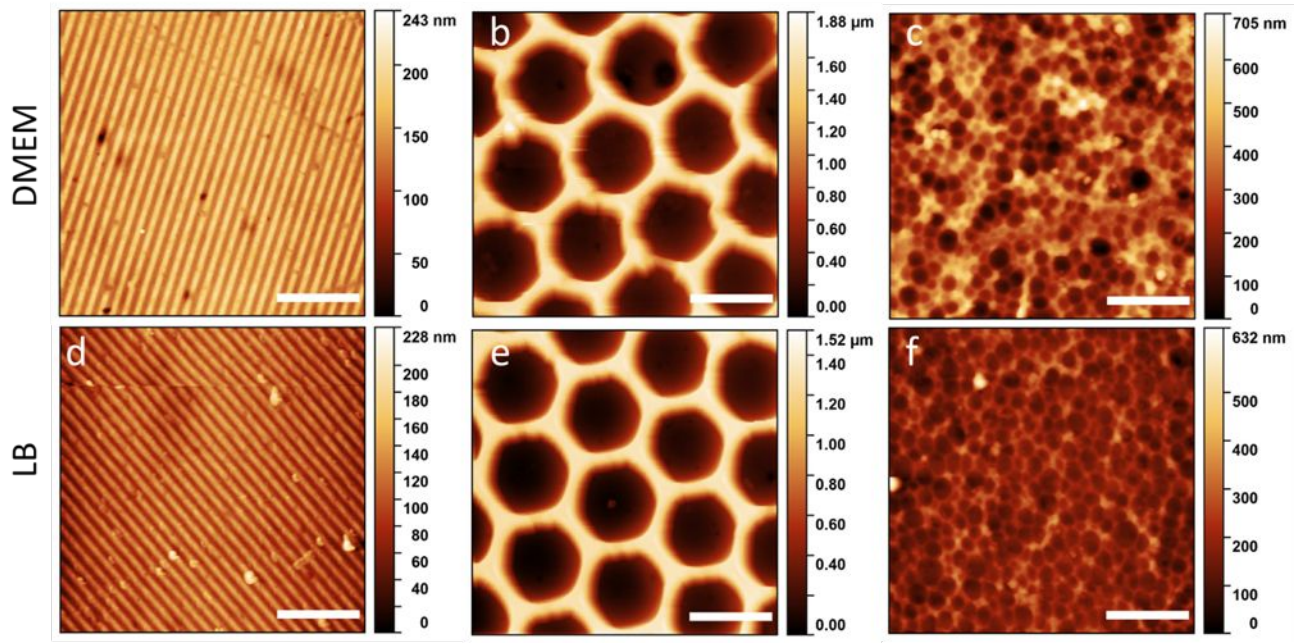

Figure S2. Representative AFM images depicting respectively the nano stripes, µwells 1, µwells 2 topographies after 7 days direct exposure to DMEM (a-c) and LB (d-f) culturing media. No significant changes of the patterning are evidenced. Scale bars, 5 µm.

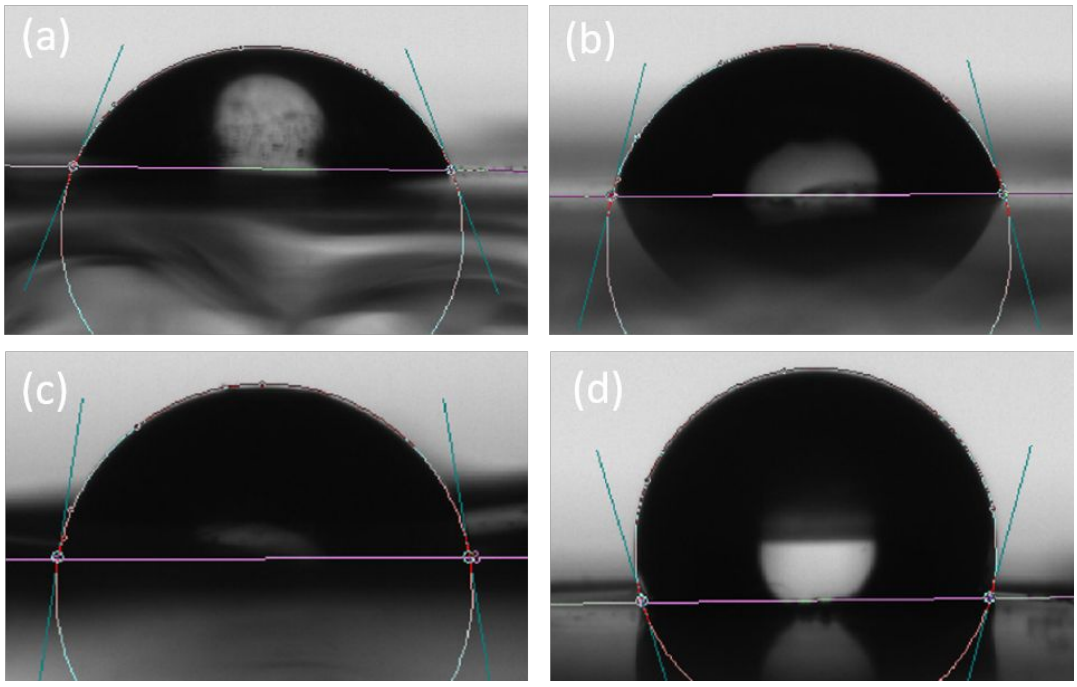

Figure S3. Representative photographs of water droplets in contact with silk flat (a), silk nano-stripes (b), μwells 2 (c) and μwells 1 (d) samples.

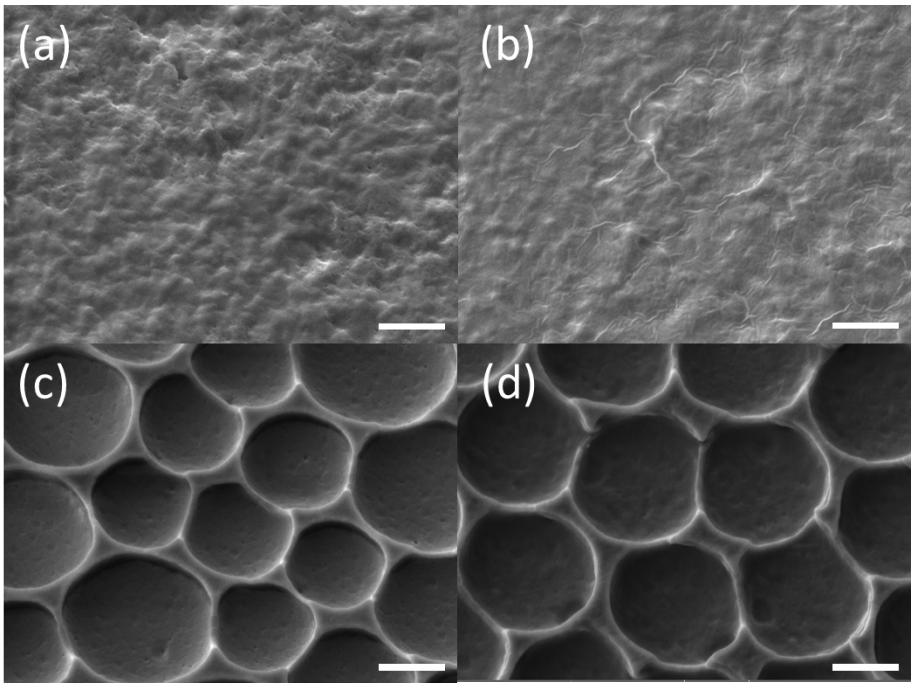

Figure S4. Top-view images of the planar not patterned-silk substrate (silk flat) without (a) and with P3HT (b) and of the untreated silk sample patterned with micro cavities (μ wells1) (c) and P3HT covered (d). Scale bar, 2 μm.

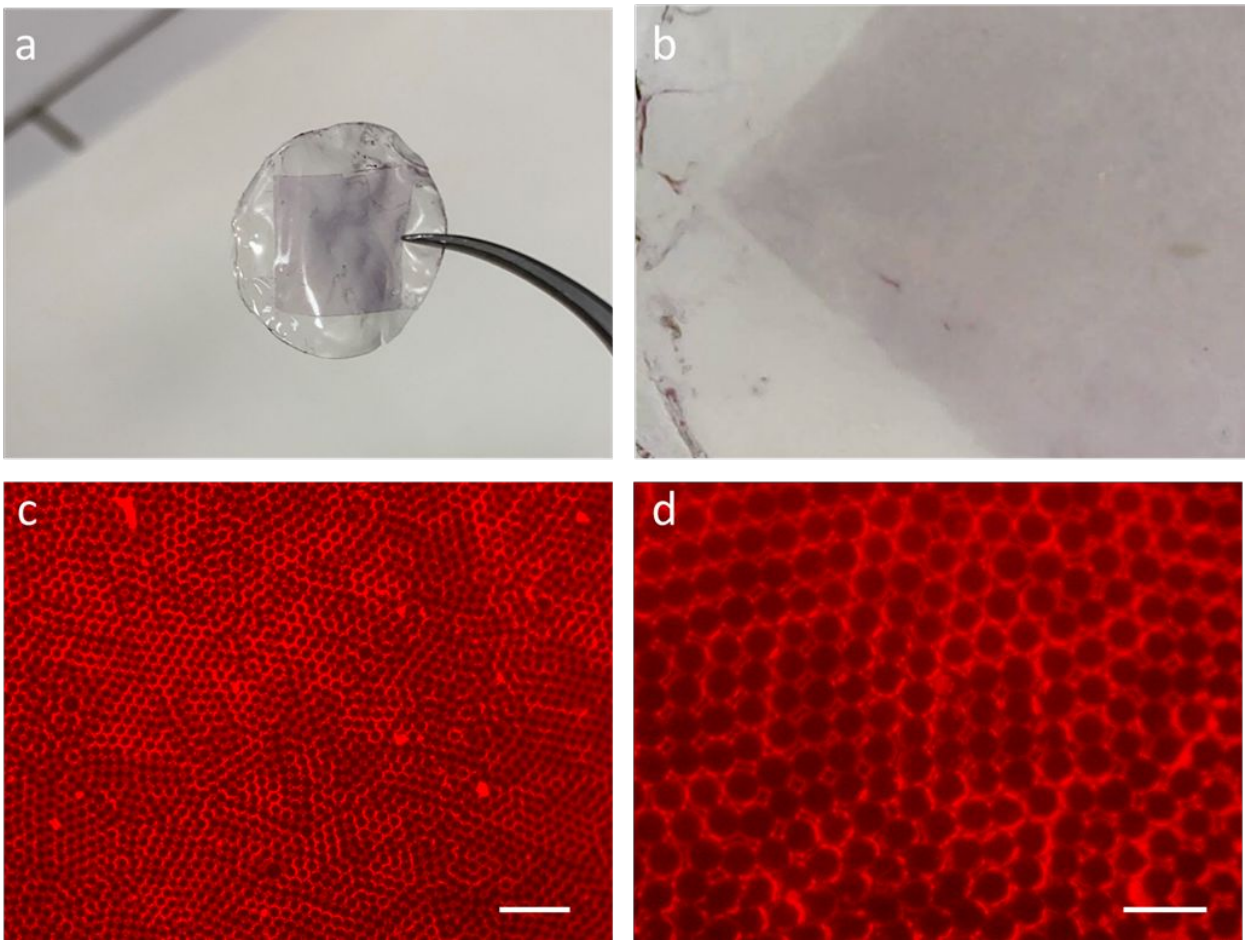

Figure S5. Photographs of the μwells 1/P3HT sample at two different magnification levels (a,b). Fluorescence emission of the P3HT layer deposited on top of the μwells 1 morphology at increasing magnification (c,d). Scale bars 20 and 10 μm respectively.

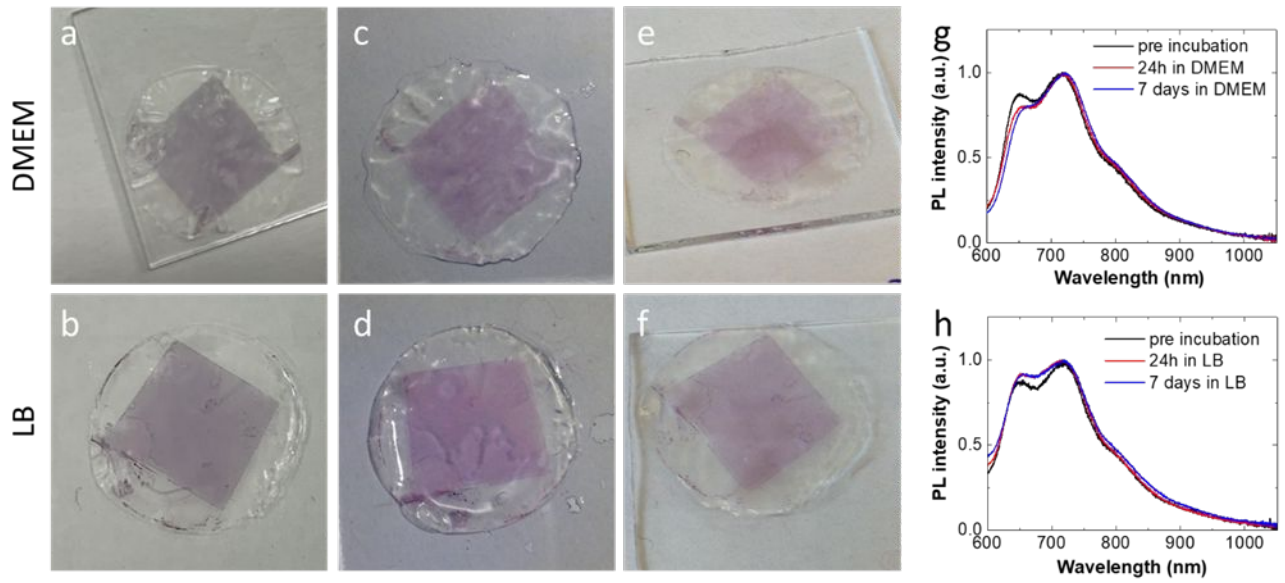

Figure S6. Photographs showing two µwells 1/P3HT samples before (a,b) and after incubation in DMEM and LB solutions for 24h (c,d) and 7 days (e,f). Please note that here the P3HT uncovered silk areas were not removed in order to better visualize the P3HT film. Instead, for running the biological assays described in the main manuscript, we have removed them in order to exclude their contribution to the measurements. Normalized photoluminescence (PL) spectra of the µwells 1/P3HT samples before and after incubation in DMEM (g) and LB (h).

Video S7. Stretchability of micropatterned silk fibroin substrates.