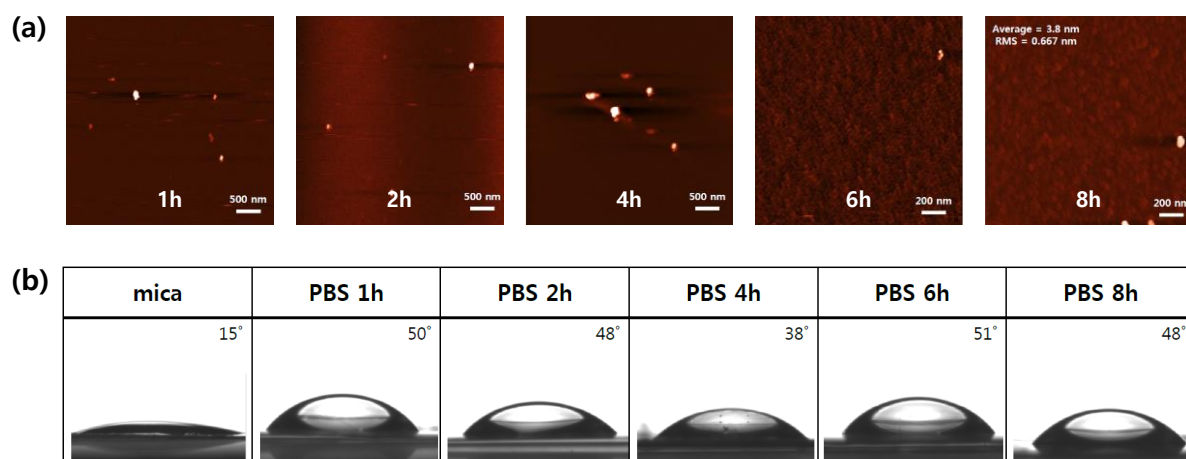


## Supporting Information

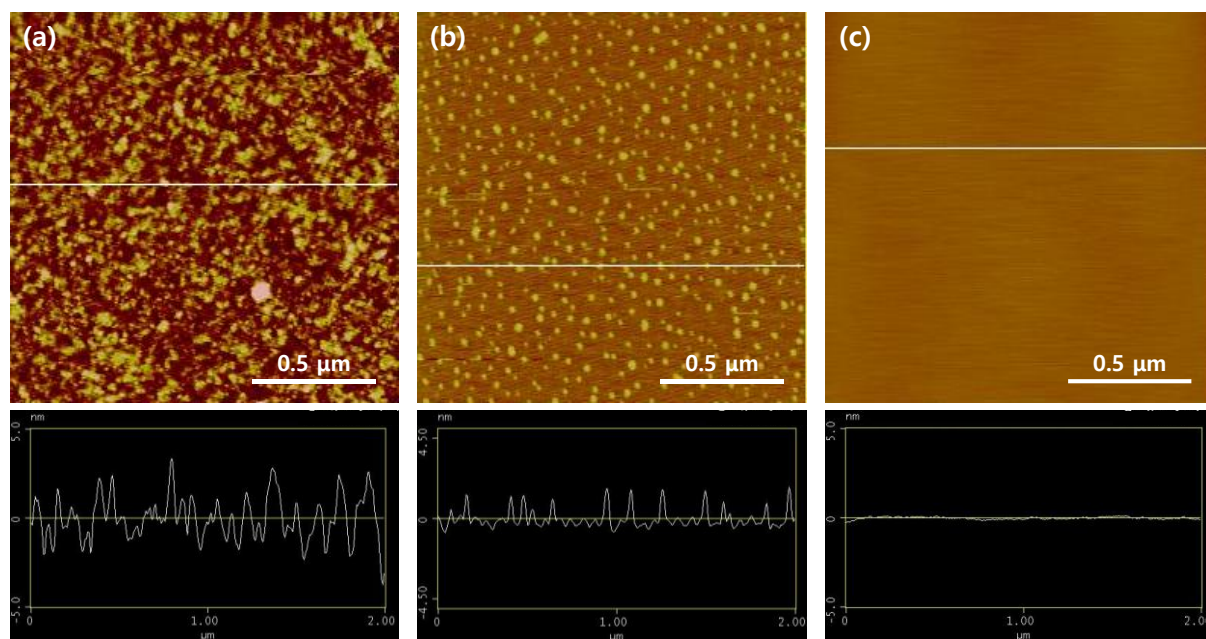
### **Nanomechanics of Poly(catecholamine) Coatings in Aqueous Solutions**

*Chanoong Lim<sup>+</sup>, Jun Huang<sup>+</sup>, Sunjin Kim<sup>+</sup>, Haeshin Lee,<sup>\*</sup> Hongbo Zeng,<sup>\*</sup> and Dong Soo Hwang<sup>\*</sup>*

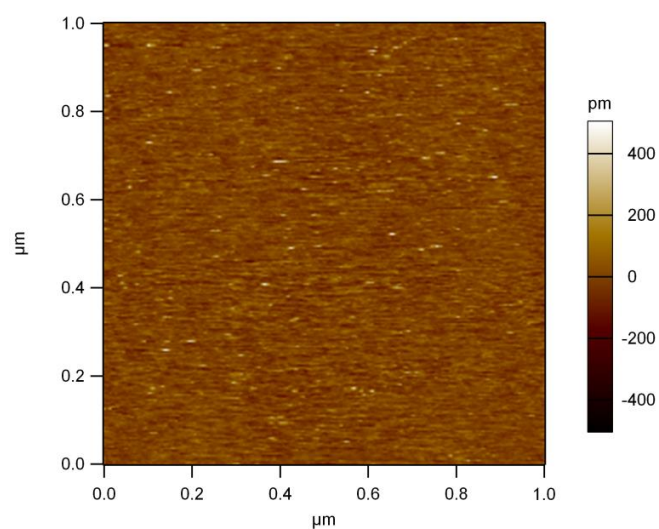
ange\_201510319\_sm\_miscellaneous\_information.pdf



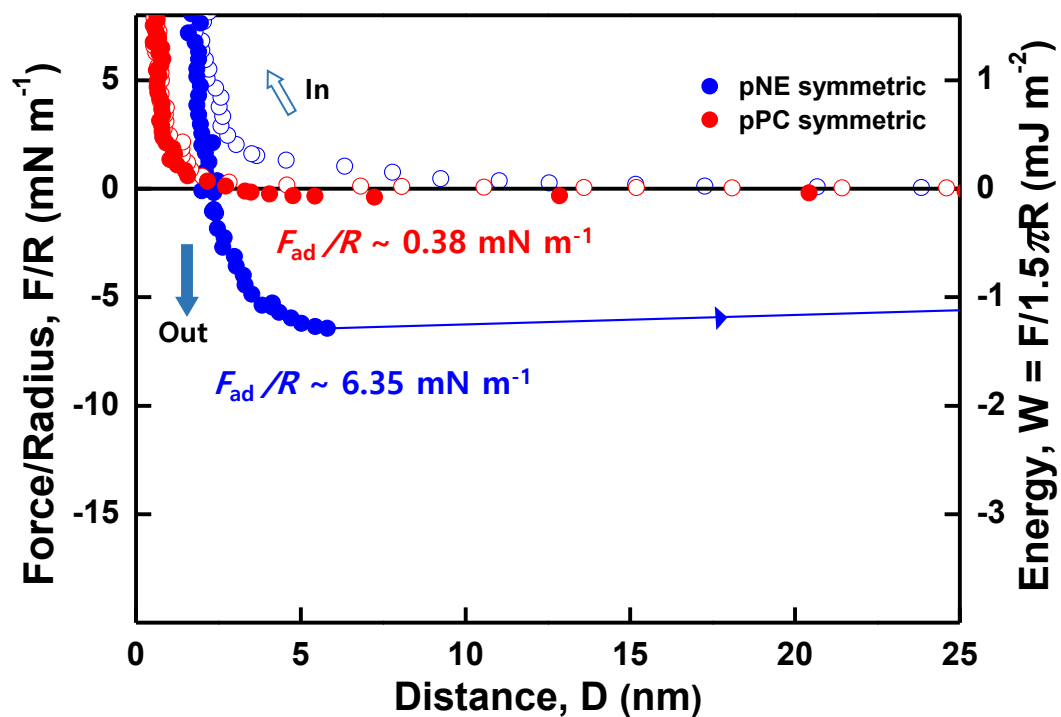
**Figure S1.** Atomic Force Microscope (AFM) images (a) and water contact angle measurement (b) of time gradual norepinephrine polymerization ( $2 \text{ mg ml}^{-1}$  in  $10 \text{ mM PBS pH } 8.4$ ) coated mica surface.



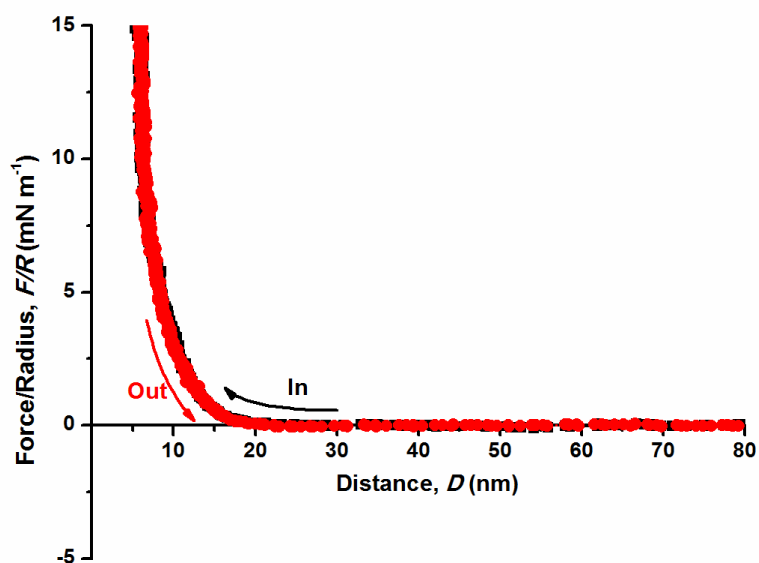
**Figure S2.** AFM images (a) pNE coated mica surface, (b) pPC coated mica surface, (c) freshly cleaved mica surface and correspondingly section profiles (bottom panels).



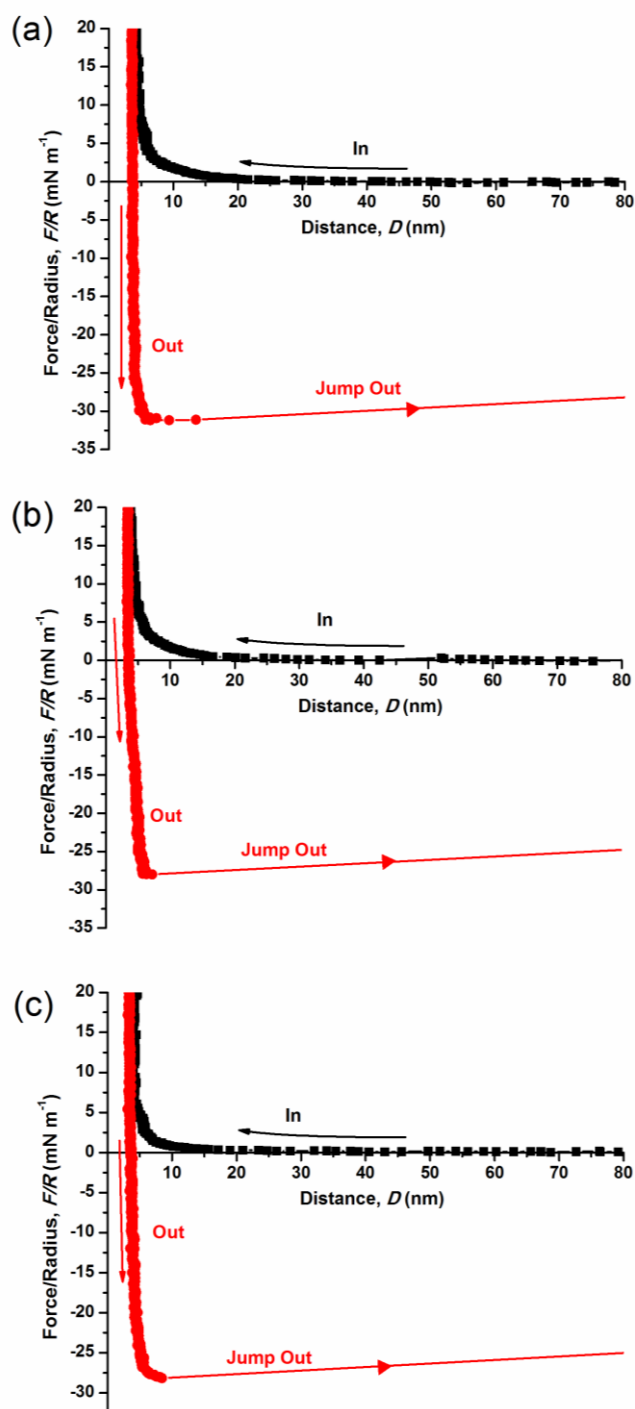
**Figure S3.** Topographic AFM image of pPC coating on mica (*in situ* polymerization for 8 h) in buffer solution.



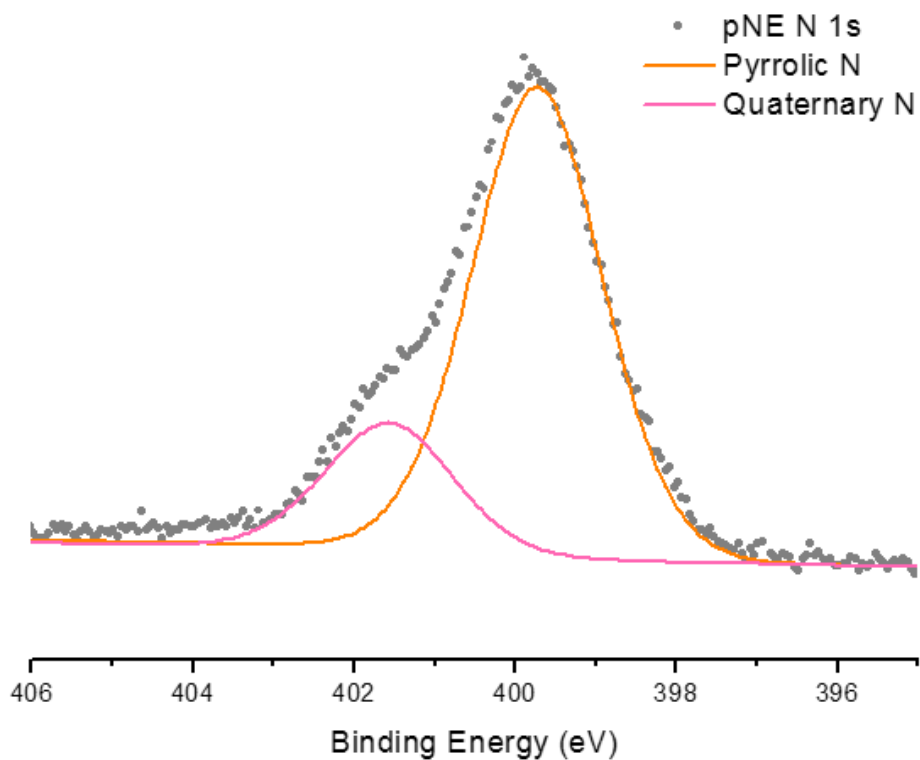
**Figure S4.** Force-distance curves ( $F/R$  vs.  $D$ ) of *in situ* polymerization at 2 min and corresponding interaction energy ( $W=F/1.5\pi R$ ) between two opposing pNE (blue) and pPC (red). Open circle – approach, closed circle – separation.



**Figure S5.** Force-distance profiles between a bare mica surface and a pPC film coated by *in situ* polymerization at  $20 \text{ mg ml}^{-1}$  PC for 8 h in 10 mM PBS pH 8.4, and pure repulsive forces were measured.

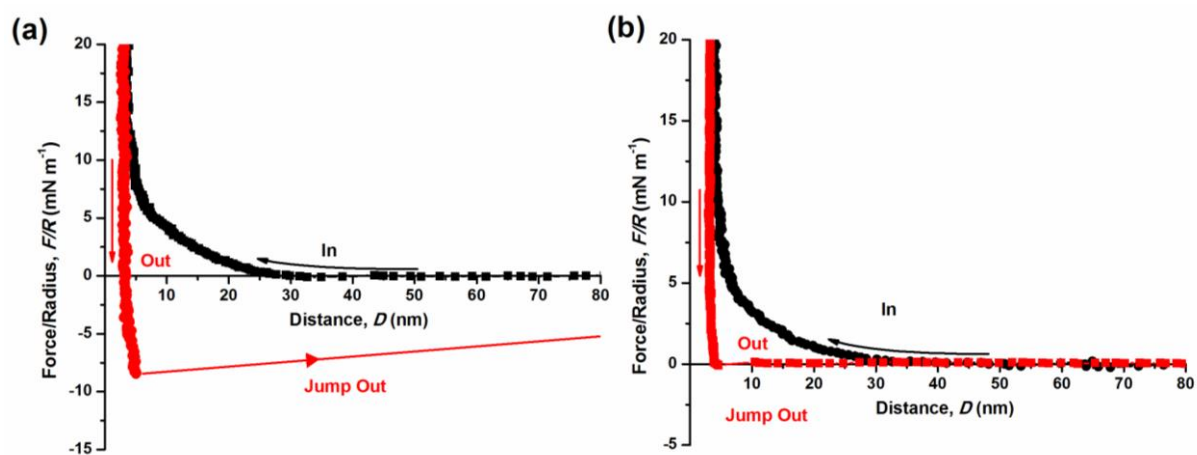


**Figure S6.** Force-distance curves for three sequential force measurements (a), (b) and (c) between two pNE layers 8 h after *in situ* polymerization at the same interaction position, which show repetitive and reversible adhesion.



**Figure S7.** N1s XPS analysis of poly(norepinephrine) coating on freshly cleaved mica surfaces for 24h. ( $2 \text{ mg ml}^{-1}$  in 10 mM PBS pH 8.4) Specific binding energies are assigned to pyrrolic N (399.7 eV) and quaternary N (401.6 eV).





**Figure S8.** Force-distance profile of pNE coated mica surfaces with the addition of (a) 10 mM  $\text{KNO}_3$ , and (b) 100 mM  $\text{KNO}_3$ .