Robust Polymer Nanofilms with Bioengineering and Environmental

Applications via Facile and Highly Efficient Covalently Layer-by-

Layer Assembling

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Figure S1. The 1H NMR spectrum of PPFPA-b-PS polymer

As can be seen from the 1H NMR spectrum (Fig. S1), intensifying signals of PPFPA related protons (peaks around 2.1, 2.5 and 3.1 ppm) are observed, which is consistent with previously reported results for PPFPA related active esters.^[1, 2] The NMR peaks around 1.3 ppm, 1.8 ppm, 6.5 ppm, 7,3 ppm are related to the protons in polystyrene.^[3] The NMR spectrum further demonstrates the successfully synthesis of PPFPA-*b*-PS polymer.



Figure S2. Corresponding adhesion map of (a) freshly cleaved mica surface, (b) PEI coated mica surface, (c) (PEI&PPFPA-b-PS)1 coated mica surface, and (d) (PEI&PPFPA-b-PS)3 coated mica surface. (a-d) correspond to Figure 2b, 2e, 2h and 2k in the main text, respectively. The adhesion maps were obtained under PeakForce tapping mode by a Bruker ICON Atomic Force Microscope (Bruker, CA, USA).



Figure S3. Cross-section image of PFO treated (PEI&PPFPA-*b*-PS)₆ polymer film with layer structure being observed

References

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