## Supplementary Information for:

Fabrication of polymer brush surfaces with highly-ordered perfluoroalkyl side groups at the brush end and their antibiofouling properties

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Fig. S1 GPC traces of the starting polymer  $(Br-PMMA_{65}-S)_2$  (dashed) and the cleaved polymer (solid), respectively.



Fig. S2 GPC traces of macroinitiator (Br-PMMA<sub>65</sub>-S)<sub>2</sub> (right) and (Br-PODMA<sub>24</sub>-*b*-PMMA<sub>65</sub>-S)<sub>2</sub> (left)



Fig. S3 <sup>1</sup>H NMR spectra of (Br-PODMA<sub>v</sub>-b- PMMA<sub>65</sub>- S)<sub>2.</sub>



Fig. S4 FTIR spectra of (a)  $(Br-PMMA_{65}-S)_2$ , (b)  $(FMA_1-ec-PMMA_{65}-S)_2$ , (c)  $(FMA_2-ec-PMMA_{65}-S)_2$ , (d)  $(FMA_5-ec-PMMA_{65}-S)_2$ , (e)  $(FMA_8-ec-PMMA_{65}-S)_2$ .



Fig. S5 Relationship between thickness of Au-PMMA<sub>65</sub>-*b*-PODMA<sub>24</sub>-*ec*-PFMA<sub>2</sub> and rinsing time.



Fig.S6 XPS spectra of Au-PMMA<sub>65</sub>-*b*-PODMA<sub>y</sub>-*ec*-FMA<sub>2</sub> brushes surfaces, TOA= $30^{\circ}$ 



Fig. S7 Modulus versus temperature for different fluorinated polymer brushes surfaces. (a) Au-PMMA<sub>126</sub>-*ec*-FMA<sub>2</sub>, (b) Au-PMMA<sub>65</sub>-*b*-PODMA<sub>6</sub>-*ec*-FMA<sub>2</sub>.

**Table S1.** Surface composition of Au-PMMA<sub>65</sub>-b-PODMA<sub>y</sub>-ec-FMA<sub>2</sub> (y=0, 6, 13, 19, 24) brushes. TOA=30°

Samples	$F_{1s}/C_{1s}$ -	Surface composition (%)				
		-CF <sub>3</sub>	-CF <sub>2</sub>	-C=O	-COC=O	-CH <sub>n</sub>
Au-PMMA <sub>65</sub> -ec-PFMA <sub>2</sub>	0.60	5.1	36.5	8.1	8.1	42.3
Au-PMMA <sub>65</sub> - <i>b</i> -PODMA <sub>6</sub> - <i>ec</i> -PFMA <sub>2</sub>	0.79	5.9	34.8	7.9	7.9	43.5
Au-PMMA <sub>65</sub> - <i>b</i> -PODMA <sub>13</sub> - <i>ec</i> -PFMA <sub>2</sub>	1.03	7.5	29.1	12.3	12.3	38.7
Au-PMMA <sub>65</sub> - <i>b</i> -PODMA <sub>19</sub> - <i>ec</i> -PFMA <sub>2</sub>	1.17	8.3	30.4	11.0	11.0	39.3
Au-PMMA <sub>65</sub> - <i>b</i> -PODMA <sub>24</sub> - <i>ec</i> -PFMA <sub>2</sub>	1.18	10.1	36.4	11.9	11.9	29.6