Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

Supporting Information

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S1. Plasma polymerization system of PEG-like thin films

a)

b)

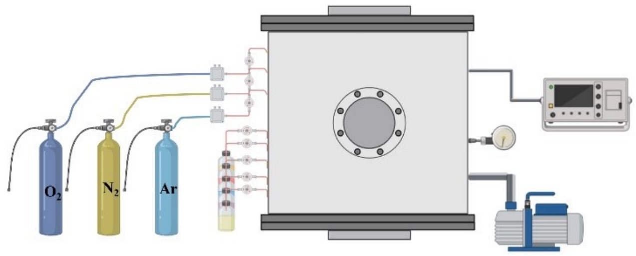

Fig. S1-1. a) Picture of PE-CVD system b) schematic drawing of PE-CVD reactor

Plasma Enhanced Chemical Vapor Deposition (PE-CVD) is a technique that enables functional polymeric thin film production at a moderate pressure and room temperature. As seen in Figure S1, there is a section on the exterior of the PECVD reactor where monomer samples are placed in a heatable quartz glass jar and three gas tanks (O_2, N_2, Ar) with their MFC's connected to the reactor. The vacuum is achieved by dry pump and the pressure of the reactor is regulated by Edwards APG200-XLC NW16 Pirani gauge and ADC controller. The plasma was generated by a 13.56 MHz radio frequency (RF) generator over a matching network with a power range of 1.0 – 300 Watts. There is an infusion system on the inside of the reactor, as well that allows solid samples to be placed and sublimed. Thin film production is carried out by allowing the vapor phase deposition on the surface of substrates placed in an inverted position on the upper wall of the reactor. Before coating the substrates (glass slide, Si wafer and catheters) the reactor evacuated to ~ 25 to 30 mTorr base pressure. Additionally, reaction chamber walls were heated up about 50^{o}C and kept constant through deposition period.

S2. FTIR analysis of PEG-like thin films

Table S1. Percentage of area for functional groups in PEG-like films obtained after different plasma exposure time

Plasma exposure time (min)	-CH$_2$-	-C-O-C	-C-O-H	-C=O-
15	19.386	7.770	55.305	1.964
30	20.118	8.500	49.385	2.604
60	27.858	12.350	34.987	3.304

S3. Crosslink & Adhesiveness Studies

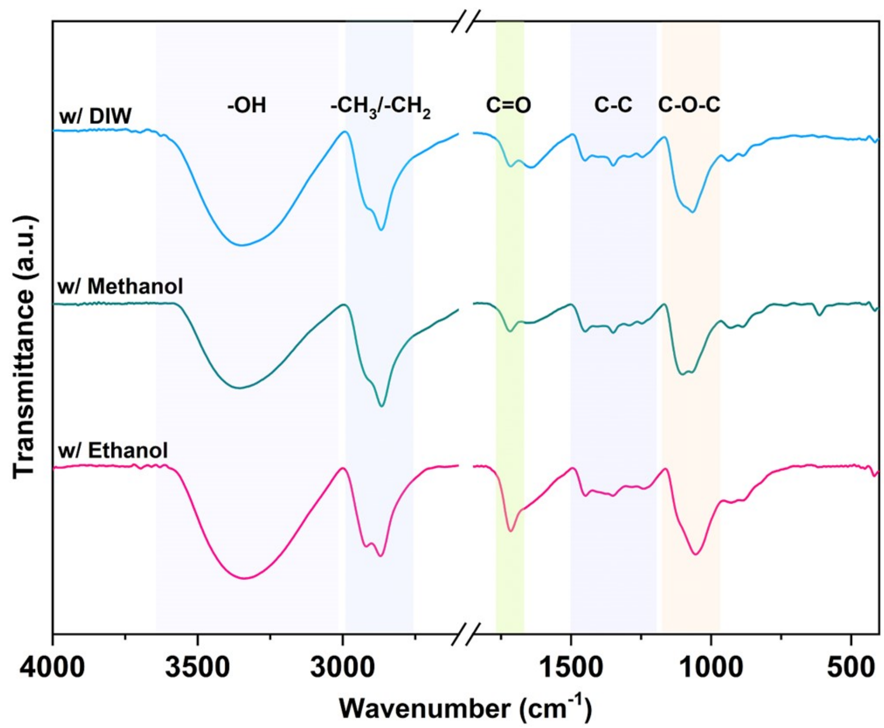

Fig. S3-1. P60-coated surfaces after rinsing with distilled water, methanol and ethanol.

S4. XPS Analysis of PEG-like thin films

Table S2. C1s XPS Analysis for PEG-like films

	-C-O-H	-C=O	-C-O-C-	-C-C-
P15	24.142	6.813	26.402	42.640
P30	20.503	7.334	38.387	33.774
P60	17.318	8.149	40.821	33.709

S5. Estimation of surface energy for PEG-like thin films

Owens-Wendt Method:

$$\gamma_{l1}(1 + cos\theta_1) = 2\sqrt{\gamma_s^d \gamma_{l1}^d} + 2\sqrt{\gamma_s^p \gamma_{l1}^p}$$

$$\gamma_{l2}(1 + cos\theta_2) = 2\sqrt{\gamma_s^d \gamma_{l2}^d} + 2\sqrt{\gamma_s^p \gamma_{l2}^p}$$

$$\gamma_s = \gamma_s^d + \gamma_s^p$$

Where;

γ_s *and* γ_l *are the surface tension of the solid and liquid,*

d *and* p *correspond to dispersion and polar components of the surface tension.*

S6. Antimicrobial/Antifouling Properties of PEG-like Films & SPSS Analysis

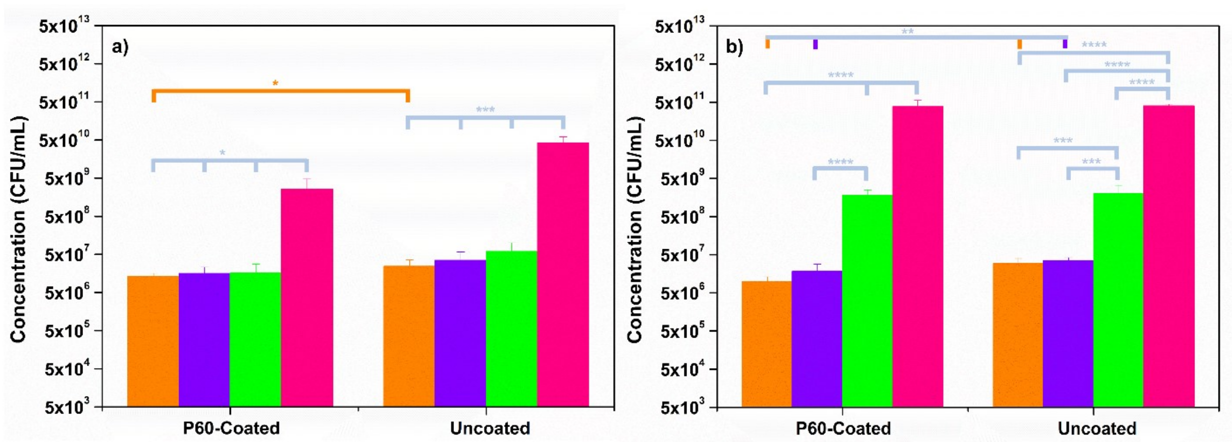

Fig. S6-1. Bacteria colonization of *P. mirabilis* a) Bacterial colonies adhered to the P60-coated and uncoated UC surfaces and b) Bacterial colonies not adhered to the P60-coated and uncoated UC surfaces. (n = 6) (*p<0.05,**p<0.01,***p<0.005,****p<0.001)

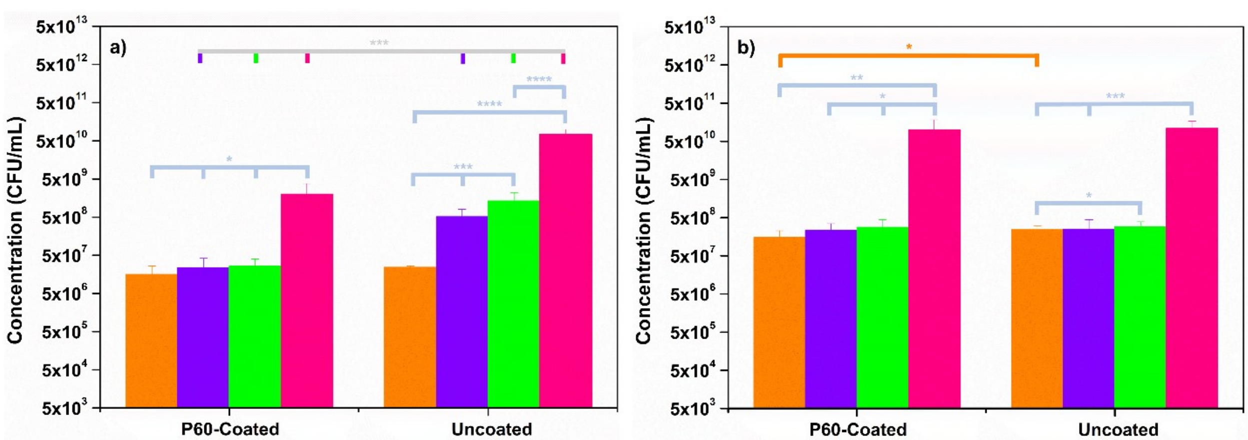

Fig. S6-2. Bacteria colonization of *E.coli* a) Bacterial colonies adhered to the P60-coated and uncoated UC surfaces and b) Bacterial colonies not adhered to the P60-coated and uncoated UC surfaces. (n = 6) (*p<0.05,**p<0.01,***p<0.005,****p<0.001)