Supporting Information for

A multifunctional surface for blood contact with fibrinolytic activity, ability to promote endothelial cell and inhibit smooth muscle cell adhesion

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Table S1 Chemical composition of copolymers in solution

Surface	f_{HEMA}[a] (%)	f_{LysMA}[a] (%)	f_{AdaMA}[a] (%)	F_{HEMA}[b] (%)	F_{LysMA}[b] (%)	F_{AdaMA}[b] (%)
PU-PHLA	87.5	10.0	2.5	86.0	11.7	2.3
PU-PHLA-1	92.5	5.0	2.5	88.6	9.2	2.2
PU-PHLA-2	96.5	1.0	2.5	91.6	6.3	2.1

[a] Molar monomer feed composition. [b] Molar copolymer composition determined by ^{1}H NMR.

Table S2 Lysine densities and water contact angles for PU-PHLA surfaces. Contact angle data are mean ± standard error (n = 6).

Surface	Lysine density (nmol/cm^2)	Water contact angle (°)
PU	0	75.8 ± 1.1
PU-PHLA	11.2	67.4 ± 1.5
PU-PHLA-1	7.5	75.4 ± 0.6
PU-PHLA-2	2.4	77.9 ± 2.2

Fluorescein isothiocyanate modified β-cyclodextrin (CD-FITC) adsorption

PU and PU-PHLA surfaces were incubated in CD-FITC solution (0.5 mM in PBS, pH 7.4) for 3 h under static conditions in dark at room temperature. Following adsorption, the surfaces were immersed in PBS for 10 min (three times) to remove loosely adsorbed CD-FITC. Then the surfaces were rinsed with deionized water and dried at 25°C under vacuum for 12 h. The adsorption of CD-FITC was evaluated using fluorescence microscopy (IX-71, Olympus, Japan).

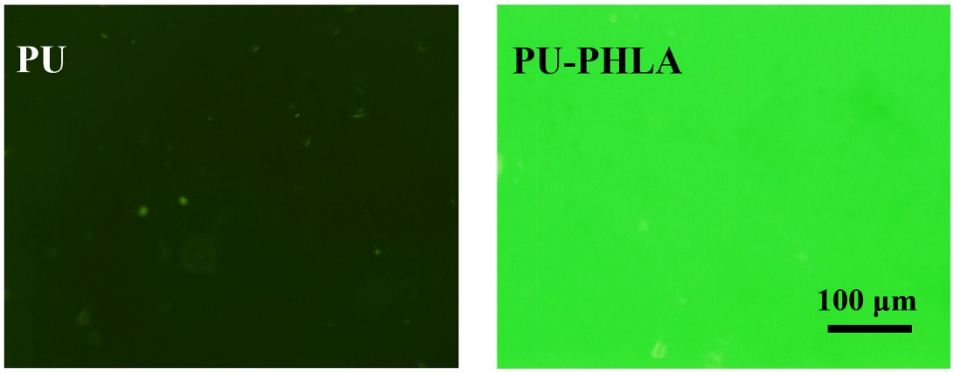

Fig. S1 Adsorption of 0.5 × 10^{-3} M CD-FITC on the PU and PU-HLA surfaces after 3 h incubation.

In vitro platelet adhesion

For each surfaces, 500 μL of platelet rich plasma (PRP) was added to a 48 well plate. The surfaces were then incubated at 37°C for 2 h. The surfaces were washed with PBS three times, then treated with 4% paraformaldehyde at room temperature for 30 min to fix the cells. After dehydration, the surfaces were examined using field-emission scanning electron microscopy (FESEM, S4700, Hitachi, Japan). The density of adherent platelets was calculated from at least 12 images for each surface.

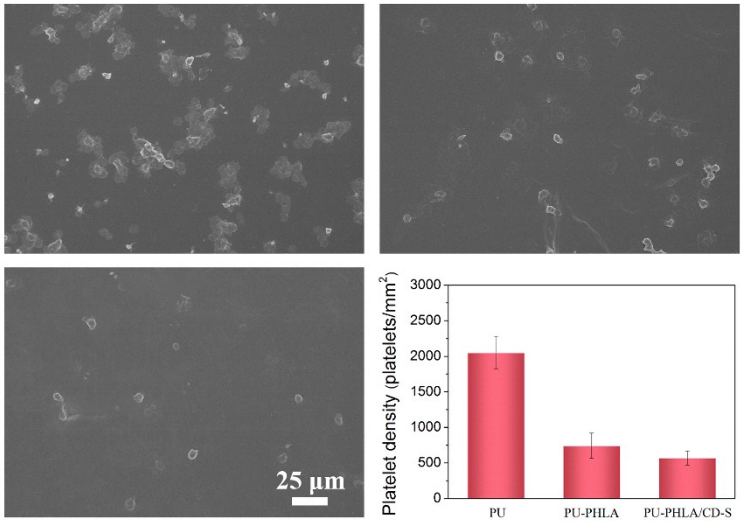

Fig. S2 Morphology and density of platelets adherent to the PU, PU-PHLA and PU-PHLA/CD-S surfaces (mean ± SD, n = 3).

Adsorption of vascular endothelial growth factor (VEGF)

The surfaces were immersed in PBS overnight prior to vascular endothelial growth factor (VEGF, Multisciences Biotech, Co., LTD, Hangzhou, China) adsorption, and then immersed in CD-FITC solution (2000 pg/mL in PBS, pH 7.4) at 37°C for 2 h. To quantify the amount of VEGF adsorption on different surfaces, the amount of VEGF in the remaining solution after loading and in combined washing solution was measured by using a human VEGF enzyme-linked immunosorbent assay (ELISA) kit (Multisciences Biotech, Co., Ltd, Hangzhou, China). The amount of adsorbed VEGF on the surfaces was calculated from the difference between the initial and remaining amounts of VEGF.

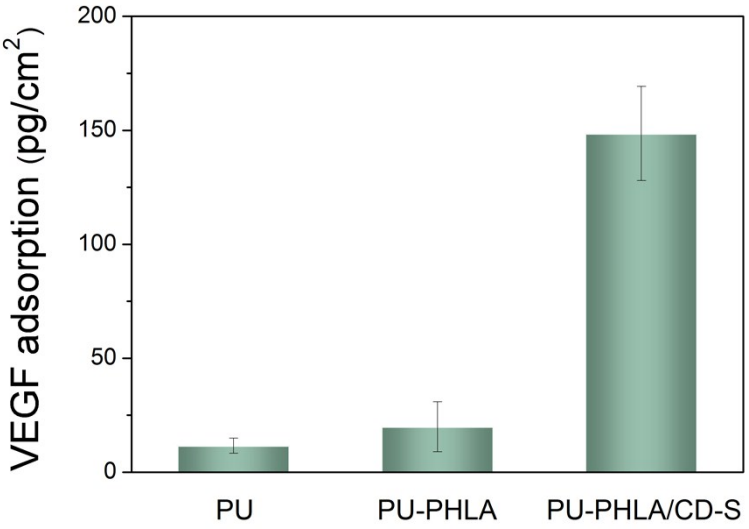

Fig. S3 VEGF adsorption on the PU, PU-PHLA and PU-PHLA/CD-S surfaces after 2 h incubation (mean ± SD, n = 3).

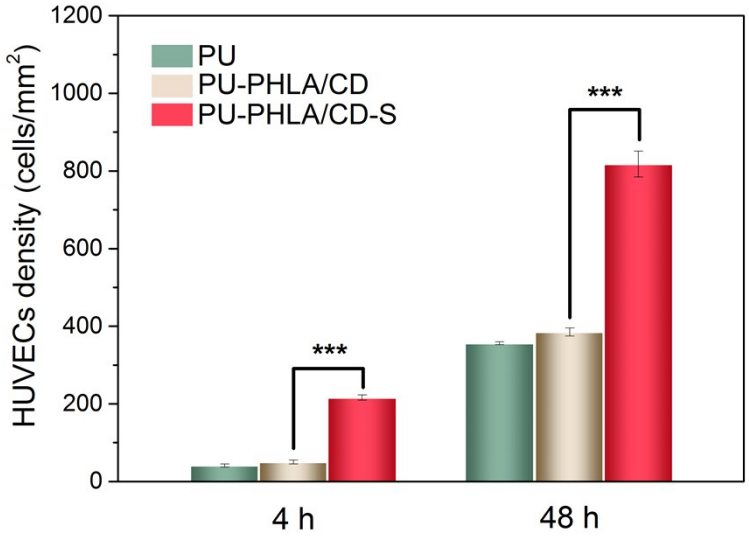

Fig. S4 Density of HUVECs adherent on PU, PU-PHLA/CD and PU-PHLA/CD-S surfaces after 4 h and 48 h culture (mean ± SD, n = 3). Comparison of data were analyzed using a Student's t test (*** $p < 0.001$).

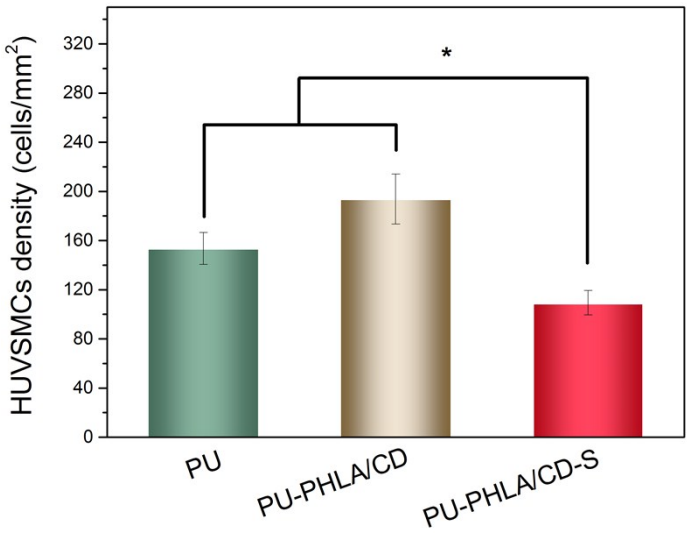

Fig. S5 Density of HUVSMCs adherent on PU, PU-PHLA/CD and PU-PHLA/CD-S surfaces after 4 h culture (mean ± SD, n = 3). Comparison of data were analyzed using a Student's t test (* $p < 0.05$).