

Supporting Information

A Bioinspired Janus Polyurethane Membrane for Potential Periodontal Tissue Regeneration

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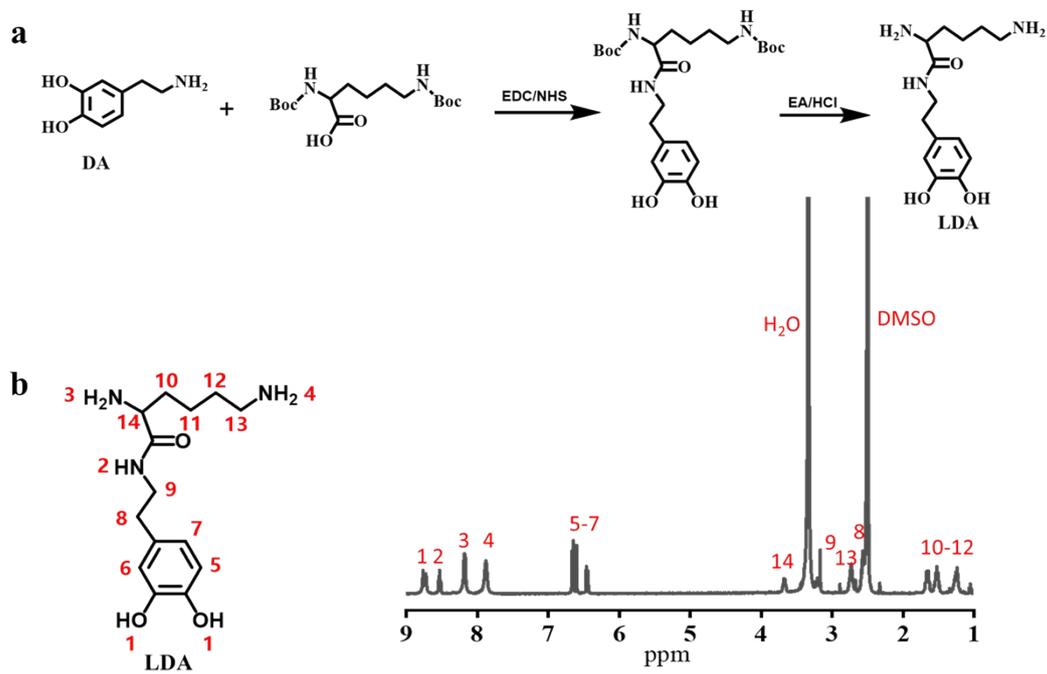


Fig. S1 (a) Synthesis scheme of LDA. (b) ^1H NMR spectra of LDA.

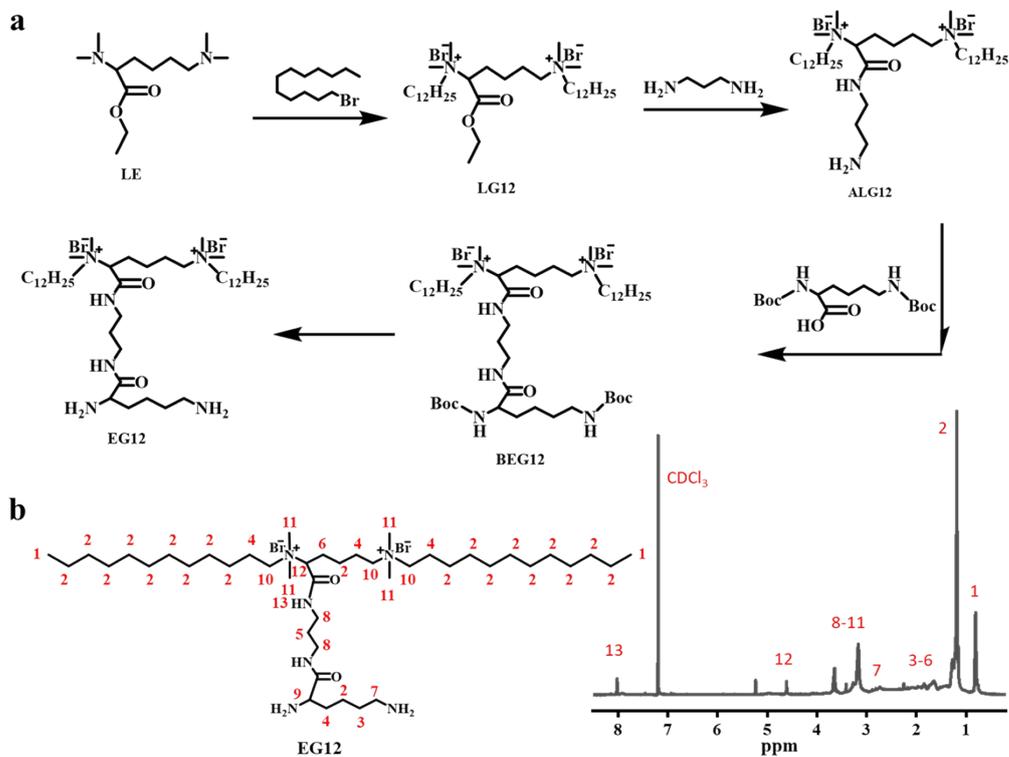


Table S1 The proportion of each element and the proportion of N⁺ to N 1s elements obtained from XPS. The value in parenthesis represents the theoretical value of N⁺ element.

Sample	C	O	N	N ⁺	Urea/ Urethane
PU-BDO	75.13	22.70	2.17	0	100
PU-BL	73.09	24.17	2.74	0	100
PU-BE	77.78	16.74	5.48	20.59 (14.12)	78.85
PU-LE1	77.22	17.66	5.12	12.36 (3.24)	82.09
PU-LE3	76.16	18.64	5.20	16.43 (8.13)	83.57
PU-LE5	77.25	17.62	5.12	17.53 (11.65)	82.47

Table S2 Atomic percentages on both sides of PU-LE5 polyurethane membrane obtained from XPS spectra.

Samples	Surface atomic percentages			Carbon components			Nitrogen components	
	C	O	N	C-C/C-H	C-O/C-N	C=O	N ⁺	Other N
Rough surface	77.59	19.16	3.25	58.67	32.93	8.4	15.12	84.88
Smooth surface	79.09	17.70	3.21	60.28	32.87	6.85	20.19	79.81

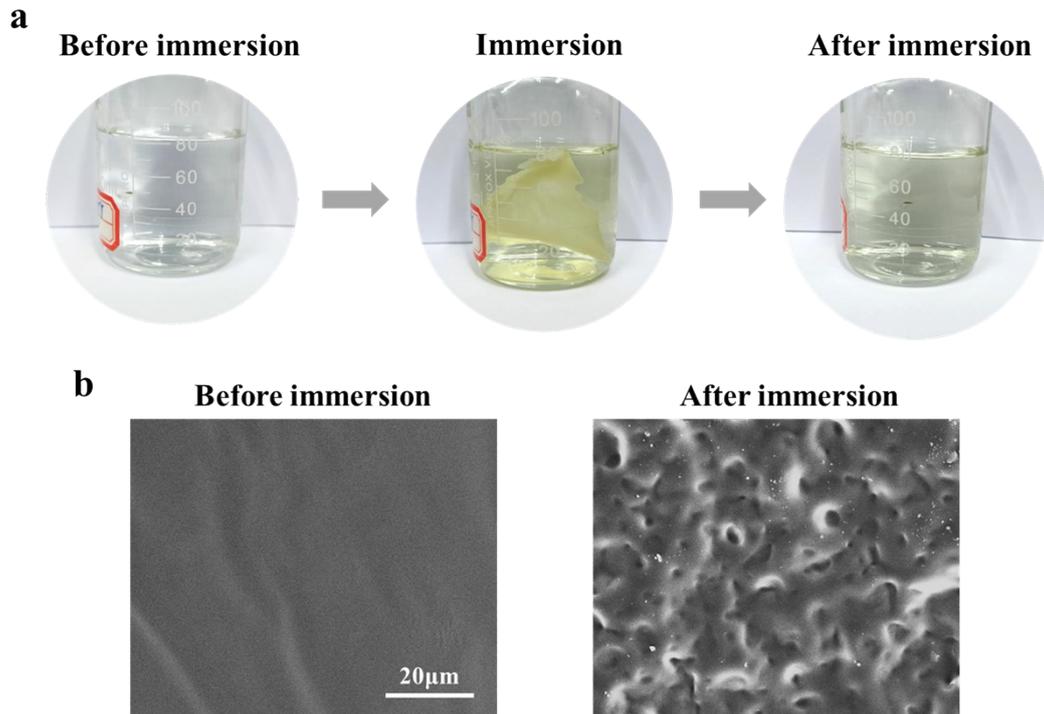


Fig. S4 (a) Color change of deionized water after PU-LE1 polyurethane membrane soaking in water. (b) Morphology of PU-LE1 polyurethane membrane (substrate-contact side) before and after soaking in water.

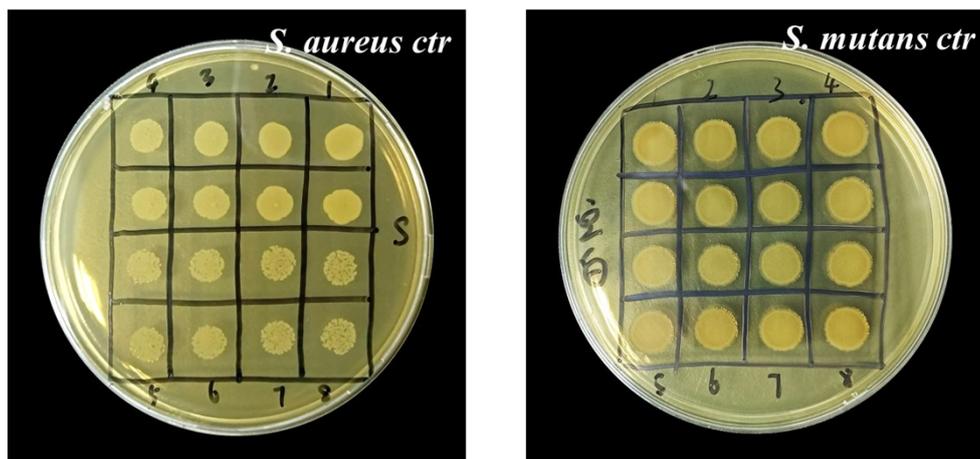


Fig. S5 Colony growth of *S. aureus* (left) and *S. mutans* (right) cultured in medium as blank control. The numbers 1-8 represent diluted 10^{-1} - 10^{-8} times.

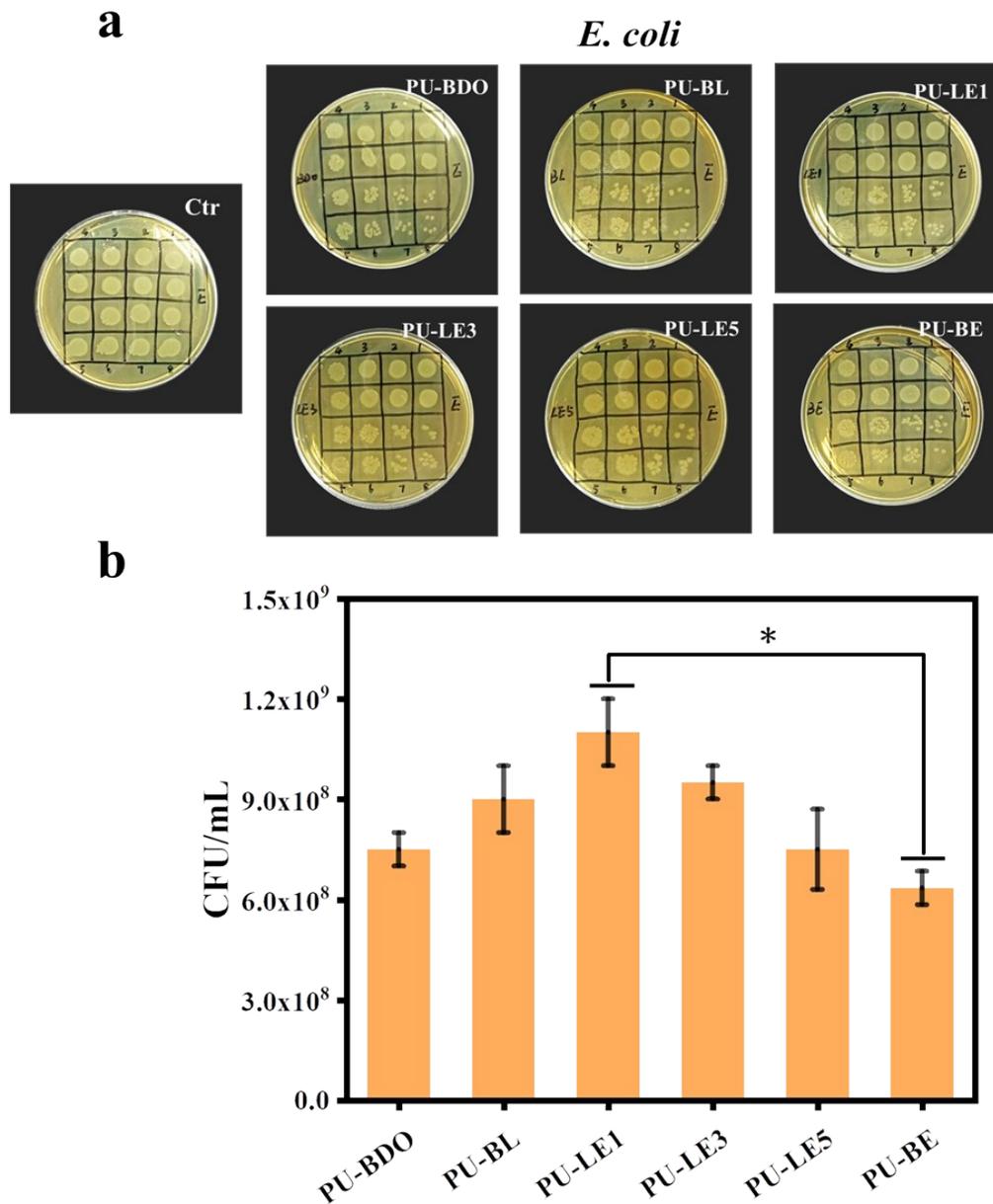


Fig. S6 (a) Colony growth of *E. coli* cultured with polyurethane membranes. The numbers 1-8 represent diluted 10^{-10^8} times. (b) Quantitative analysis of colony forming units (CFU) of *E. coli*. * $P < 0.05$.

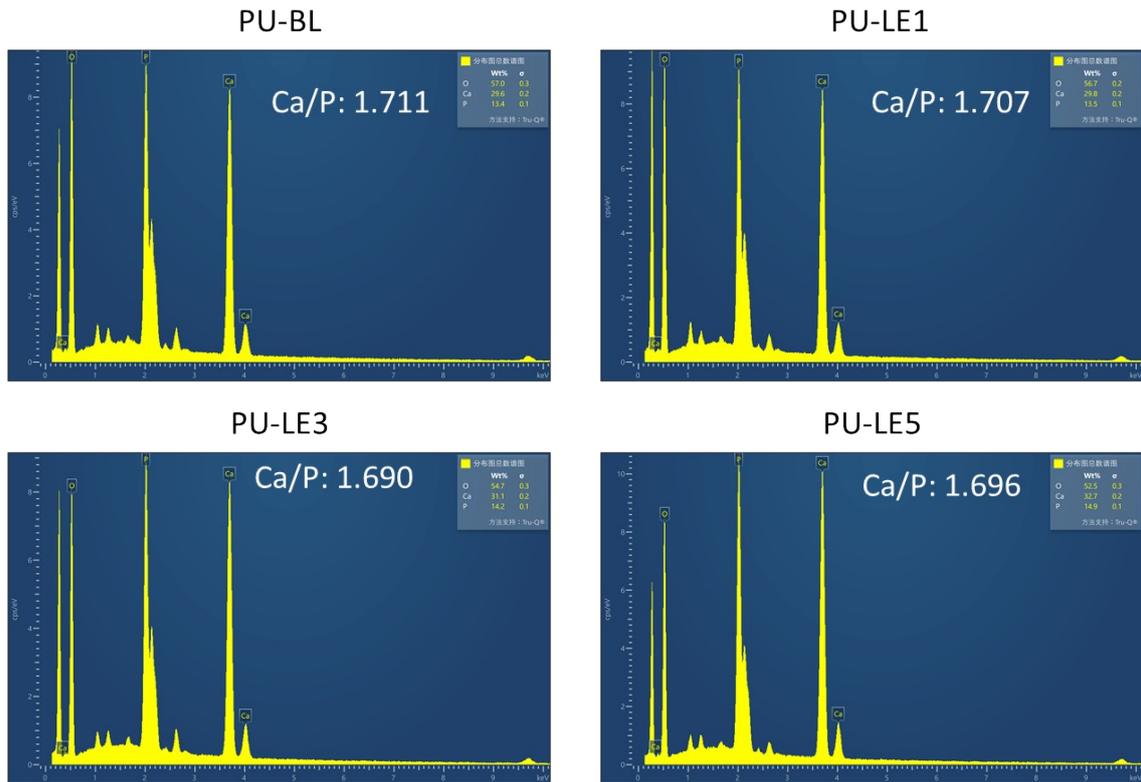


Fig. S7 The Ca/P ratio of the minerals on the surface of polyurethane membranes obtained from EDX.

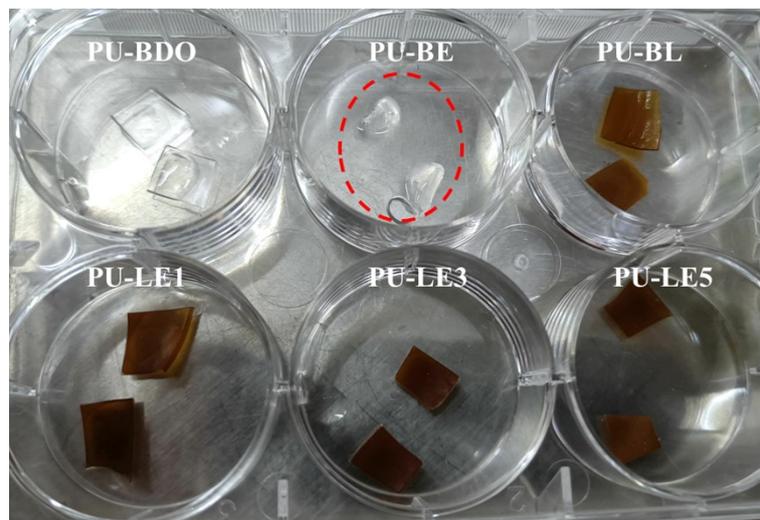


Fig. S8 The polyurethane membranes were immersed in simulated body fluids for 7 days

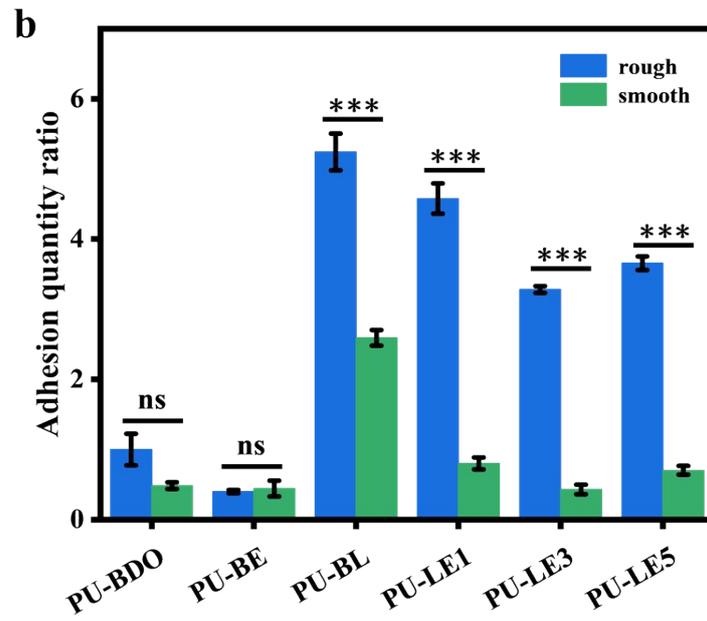
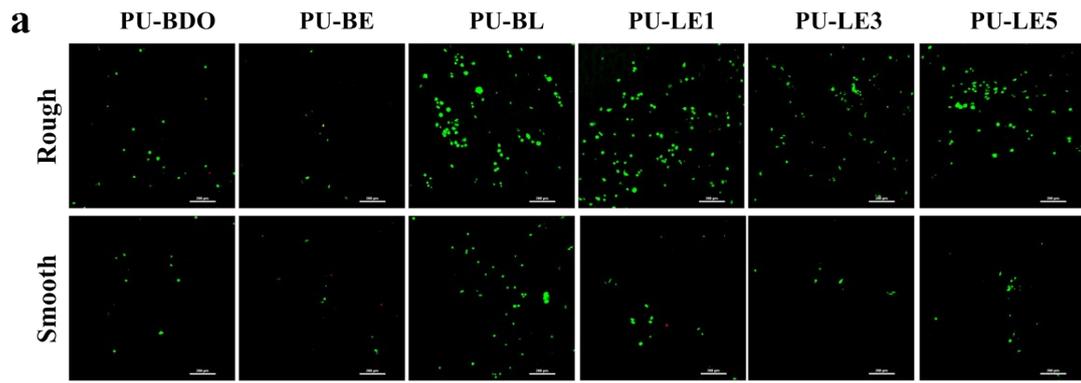


Fig. S9 (a) Live/dead staining images of L929 implanted on rough and smooth surfaces of polyurethane membranes for 3 days. Green fluorescence and red fluorescence represent living and dead cells, respectively. Scale is 200 μ m. (b) Relative value of cell adhesion. The adhesion amount of rough surface of PU-BDO was defined as 1. ***P < 0.001.