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

Supporting Information

Immobilization of Antimicrobial Peptide on Silicon Surface with Stable Activity by Click Chemistry

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Experimental

The 9.10-phenantroquinone assay for the Maillard-type reaction

The 9.10-phenantroquinone assay was employed to characterize the Maillard-type reaction between the Arginine in the PraAMP and the ascorbic acid sodium salt as follows.

First, the calibration curve of the free PraAMP was prepared. Briefly, the peptide powder was dissolved with distill water to achieve the concentration of 100 μM, 50 μM, 25 μM, 12.5 μM and 6.25 μM. Then 100 μL of the peptide solution was mixed with 300 μL of 9.10-phenantroquinone (3.23 mM). The mixture was incubated at 30 ℃ for 3 h. After that, 225 μL of HCl (2.4 M) was added to stop the reaction. The fluorescence emission intensity was measured at 380 nm by the ELISA plate reader (Varioskan Flash 3001, Thermo, Finland) with the excitation wave-length of 256 nm.

After that, three solutions were prepared:

Group A: 250 μL of the PraAMP solution (100 μM);

Group B: 250 μL of the L-ascorbic acid sodium salt solution (6 mM);

Group C: 250 μL of the mixture of PraAMP and L-ascorbic acid sodium salt (100 μM of PraAMP and 6 mM of L-ascorbic acid sodium).

The three groups were incubated at 37 ℃. After 2 h of reaction, 100 μL of each solution was taken for 9.10-phenantroquinone assay as above.

Fig. S1 The mass spectrometry of PraAMP.

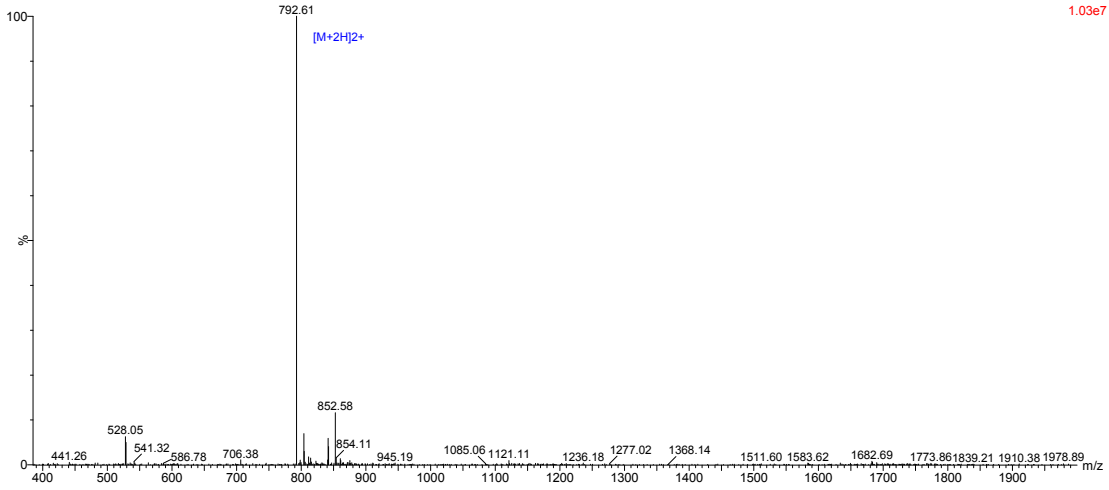

Fig. S2 The circular dichroism spectra of AMP and PraAMP.

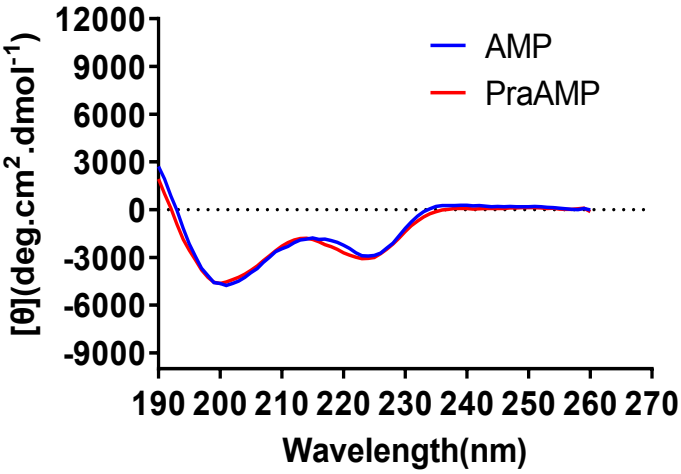

Fig. S3 The antimicrobial activity of the indicated surface against *S.aureus* in medium after 2 h of culture.

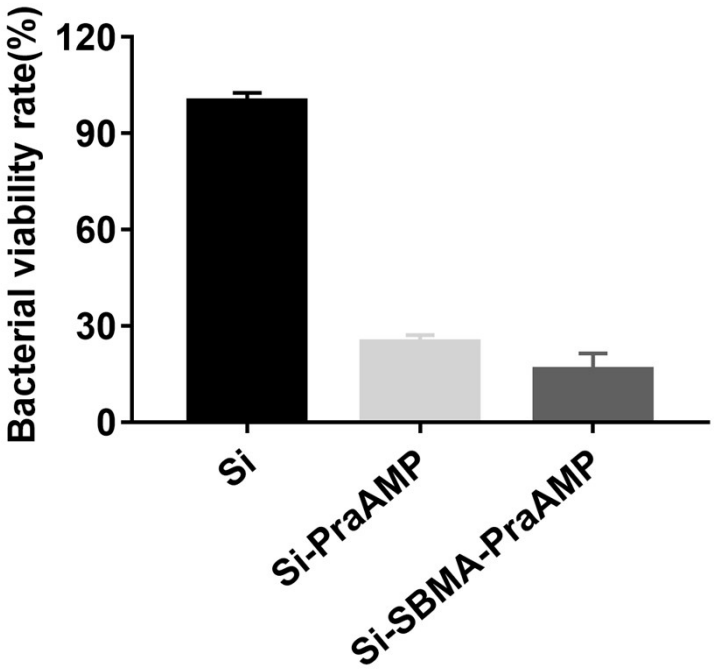

Fig. S4 The antimicrobial activity of the indicated surface against *P. aeruginosa* in medium after 2 h of culture.

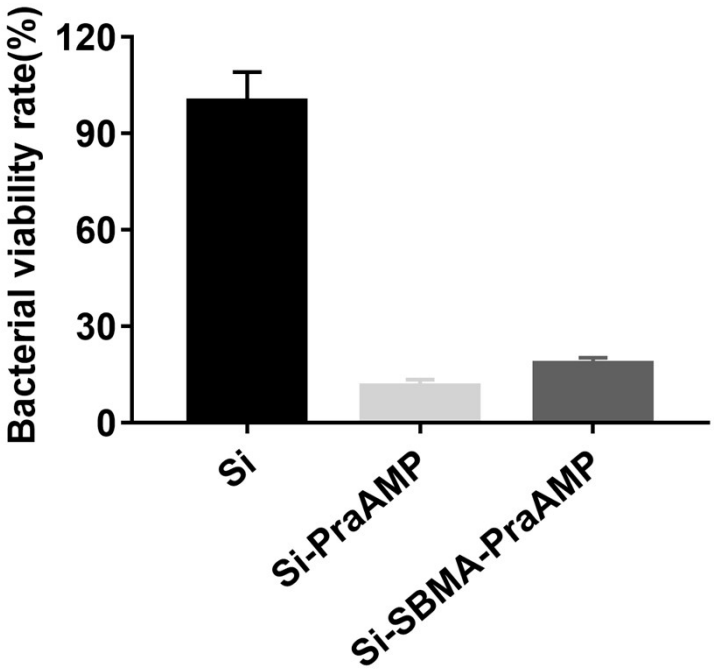

Fig. S5 The calibration curve of free PraAMP from the 9.10-phenantroquinone assay.

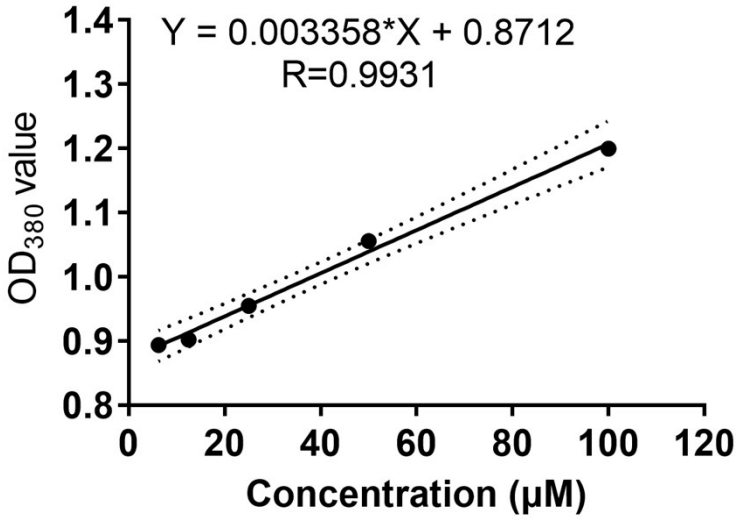

Table. S1 OD_{380} values of the indicated groups

	A	B	C
OD_{380} value	1.2170	0.8515	1.076
Peptide concentration (μM)	100	0	61