Electronic Supplementary Material (ESI) for RSC Advances.

Supplementary Material for

Antimicrobial peptide, GL13K, immobilized onto SLA-treated titanium by silanization: Antibacterial effect against methicillin-resistant *Staphylococcus aureus* (MRSA)

Yusang Li,[a] Ruiying Chen, [d] Fushi Wang, [ac] Xinjie Cai*[ab] and Yining Wang* [ab]

[a] The State Key Laboratory Breeding Base of Basic Science of Stomatology (Hubei-MOST) and Key Laboratory of Oral Biomedicine Ministry of Education, School and Hospital of Stomatology, Wuhan University, Wuhan, China

[b]Hospital of Stomatology Wuhan University, Department of Prosthodontics, Wuhan, China

[c]Hospital of Stomatology Wuhan University, Department of Cariology and Endodontics, Wuhan, China

[d]Shanghai Ninth People's Hospital, Shanghai Jiao Tong University School of Medicine; College of Stomatology, Shanghai Jiao Tong University, Department of Implant Dentistry, Shanghai, China

*Authors to whom any correspondence should be addressed.

E-mail: xinjie.cai@whu.edu.cn and wang.yn@whu.edu.cn

S1. Minimum inhibitory concentration (MIC) test

Bacteria were prepared as described in the main article. After that, 90µl bacterial suspension was added to 10ul of 2-fold serial GL13k solution in 96-well plates. The final concentration of GL13K is from 2µg/ml to 2048µg/ml (2µg/ml to 4096µg/ml for MRSA). Bacteria suspension without GL13K and GL13K solution without bacteria was used as control. The plate was incubated at 37°C for 16h, then the OD value at 600nm (OD600) was determined by an ELX808 Ultra Microplate Reader (Bio-Tek Instruments, Inc., USA)

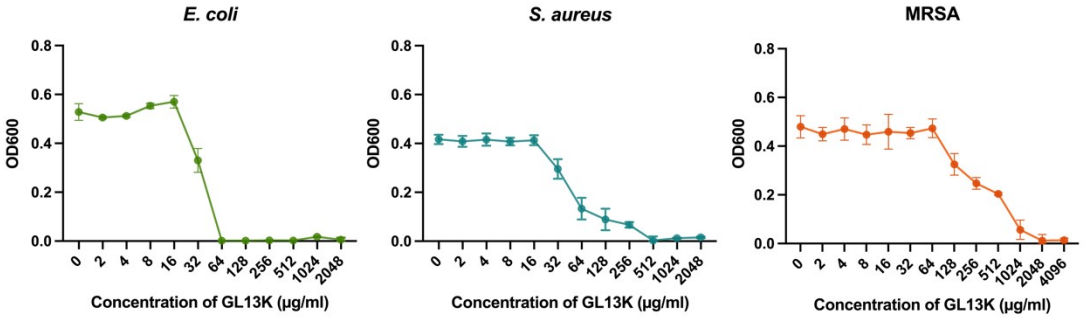

Fig. S1 MIC result of GL13K against *E. coli*, *S. aureus*, and MRSA.

S2. Antibacterial study and in vitro cellular study of SSG1000 and SSG2000

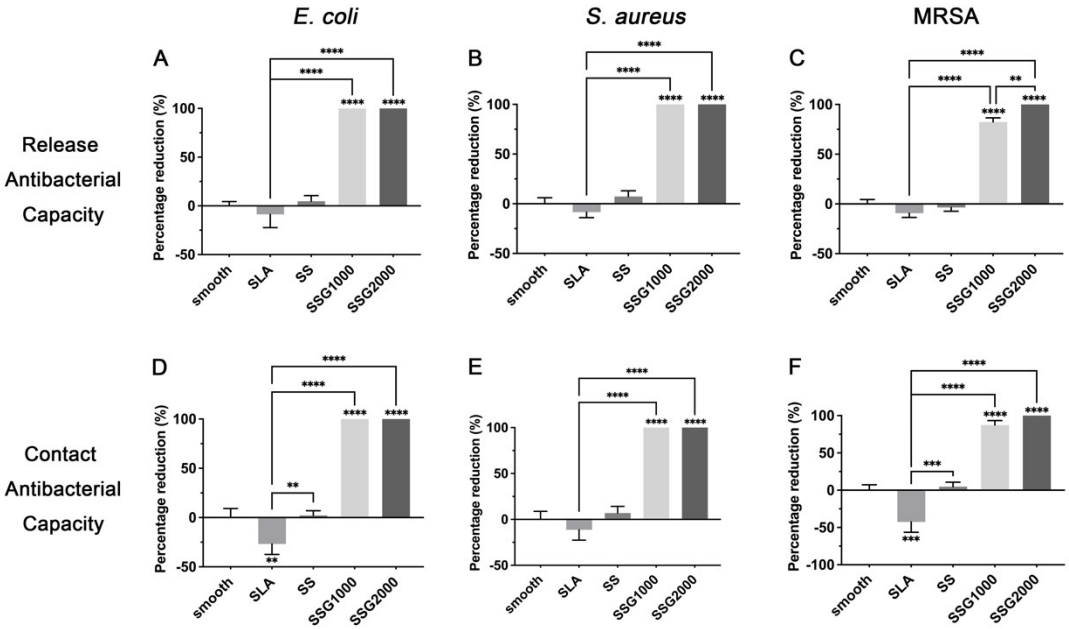

Fig. S2 The percentage reduction of *E. coli*, *S. aureus*, and MRSA in release and contact antibacterial experiment of SSG1000, SSG2000 and other samples. (**p < 0.01, ***p < 0.005, ****p < 0.0001).

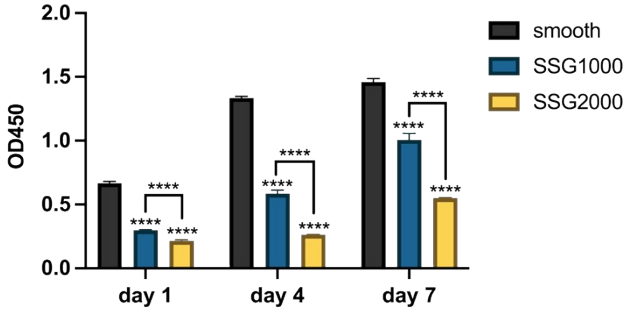

Fig. S3 Proliferation of MC3T3-E1 cells culturing with the samples of Smooth, SSG1000, and SSG2000 groups. (****$p < 0.0001$).

S3. In vitro degradation test of GL13K at different concentrations

The GL13K was dissolved in PBS at different concentrations: 32 μg/ml, 128 μg/ml, and 512 μg/ml and was incubated at 37°C. The initial A205 was measured, and at each pre-determined time interval, A205 of each sample was measured by an ELX808 Ultra Microplate Reader (Bio-Tek Instruments, Inc., USA).

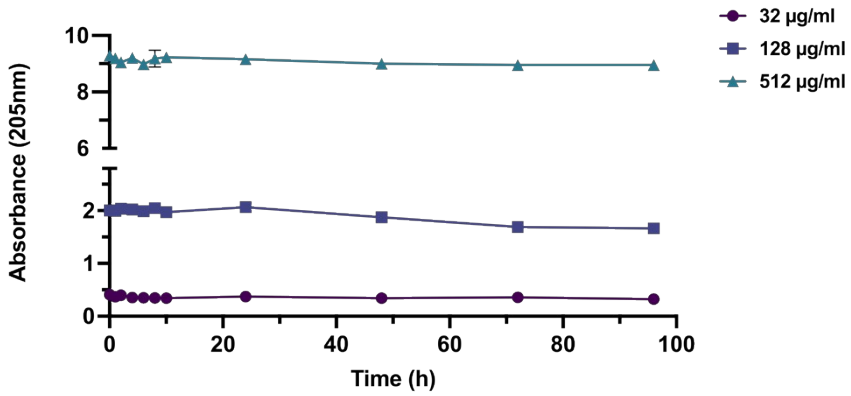

Fig. S4 Degradation profile of GL13K at concentrations of 32 μg/ml, 128 μg/ml, and 512 μg/ml.