

Switchable modulation of bacterial growth and biofilm formation based on supramolecular tripeptide amphiphiles

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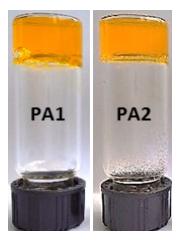


Fig. S1 Photograph of hydrogels assembled from 7 mM of PA1 and PA2 in PBS solution (pH 7.4).

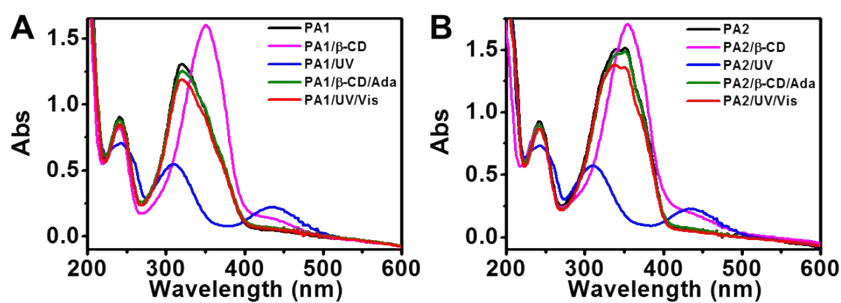


Fig. S2 UV-Vis spectra of 0.7 mM of PA1 and PA2 in PBS solution (pH 7.4) upon response to light or host-guest interaction.

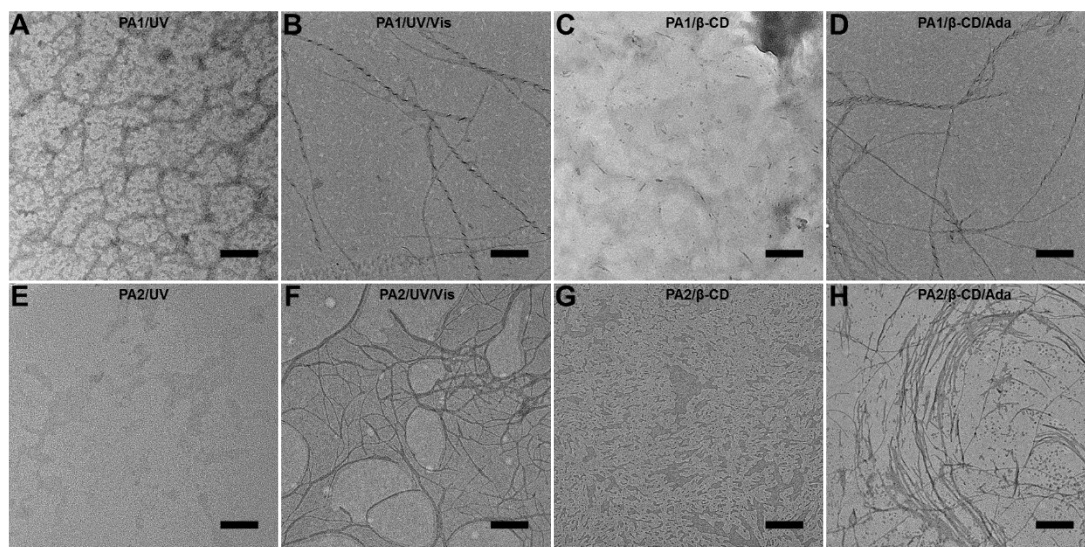


Fig. S3 TEM images show the disassembly-to-assembly process of PA1 and PA2 upon response to light or host-guest interaction. The scale bars are 500 nm.

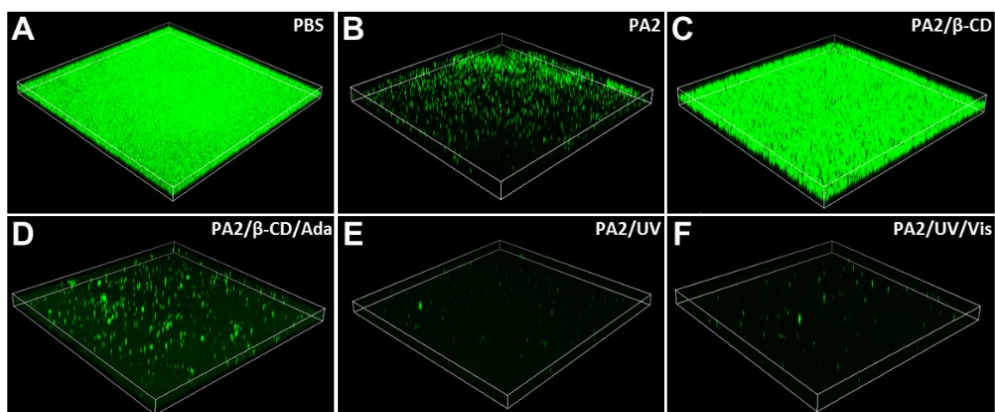


Fig. S4 3D CLSM imaging of supramolecular/photo controllable biofilm inhibitory potency of PA2 against *S. aureus* at 37 °C in the dark for 24 h after staining with SYTO9 (The size of each CLSM image is 1272 μm \times 1272 μm).

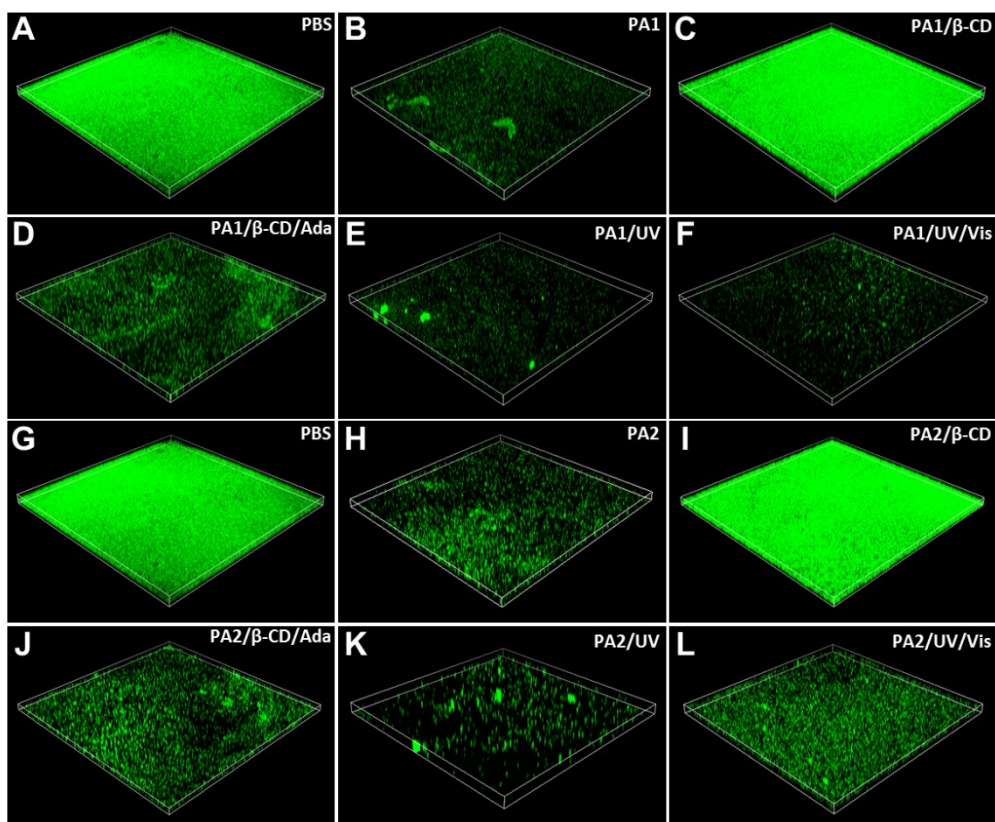


Fig. S5 3D CLSM imaging of supramolecular/photo controllable biofilm inhibitory potency of PA1 and PA2 against *P. aeruginosa* at 37 °C in the dark for 24 h after staining with SYTO9 (The size of each CLSM image is 1272 μm \times 1272 μm).

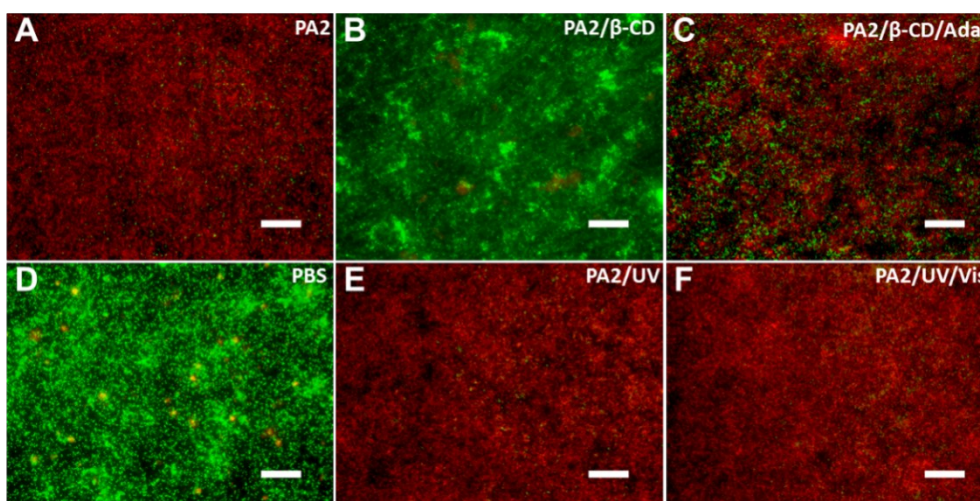


Fig. S6 Fluorescent imaging of the preformed *S. aureus* biofilms after treatment of 0.35 mM of PA2, PA2/ β -CD, PA2/ β -CD/Ada, PA2/UV or PA2/UV/Vis at 37 °C in dark for 24 h after staining with LIVE/DEAD™ BacLight™ Bacterial Viability Kit (live cells appear green, dead cells appear red; scale bar = 20 μ m).

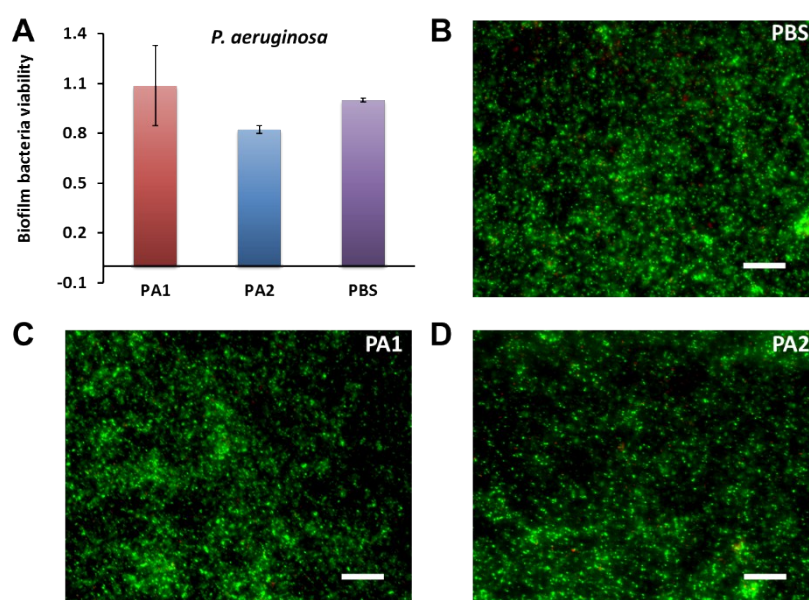


Fig. S7 (A) Quantitative analysis of the metabolic activity of the preformed *P. aeruginosa* biofilms after exposure to 0.35 mM of **PA1** or **PA2** at 37 °C in the dark for 24 h via an XTT reduction assay. (B-D) Fluorescent imaging of the preformed *S. aureus* biofilms after treatment of 0.35 mM of **PA1** or **PA2** at 37 °C in dark for 24 h after staining with LIVE/DEAD™ BacLight™ Bacterial Viability Kit (live cells appear green, dead cells appear red; scale bar = 20 µm).

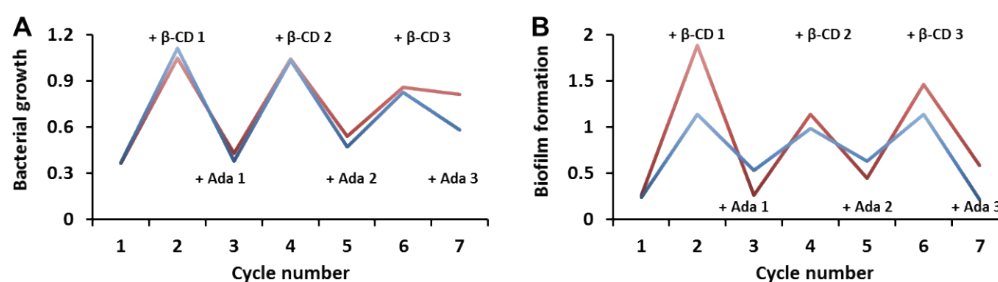


Fig. S8 Switchable antibacterial (A) and antibiofilm (B) activities of PA1 (red) and PA2 (blue) against *S. aureus* upon host-guest interaction for 3 cycles.

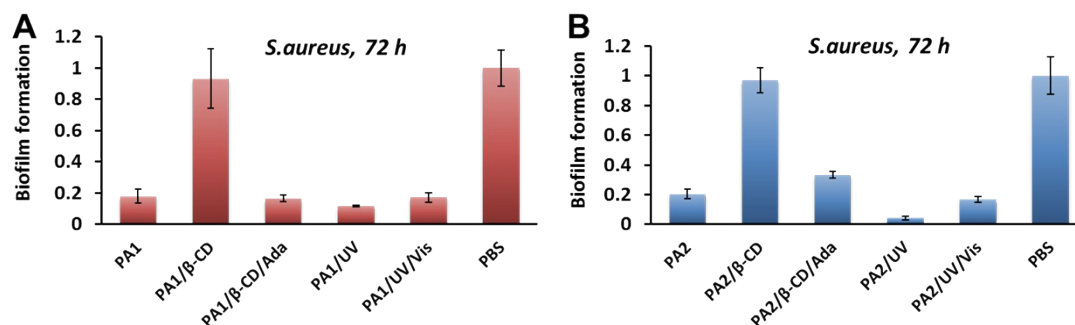


Fig. S9 Quantitative analysis of supramolecular/photo controllable biofilm inhibitory potency of PA1 and PA2 against *S. aureus* at 37 °C in dark for 72 h by recording the OD₅₅₀ of crystal violet-treated biofilms.

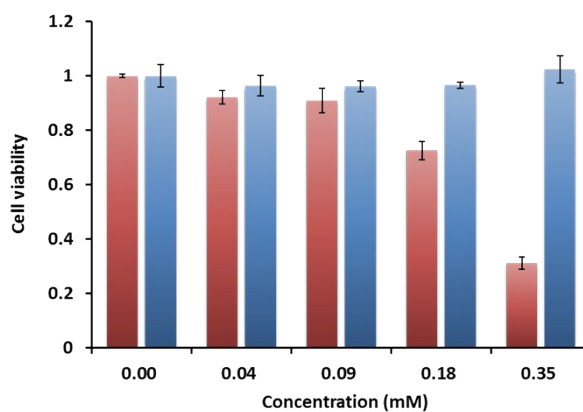


Fig. S10 Cytotoxicity of PA1 (red column) and PA2 (blue column) toward L929 cells at 37 °C for 24 h by Cell Counting Kit-8 assay. PA1 exhibits dose-dependent cytotoxicity against L929 cells, while PA2 shows good cytocompatibility.