Supplementary Information

Sustained Antibacterial Activity of Berberine hydrochloride Loaded Supramolecular *Organoclay Networks with Hydrogen-Bonding Junctions*

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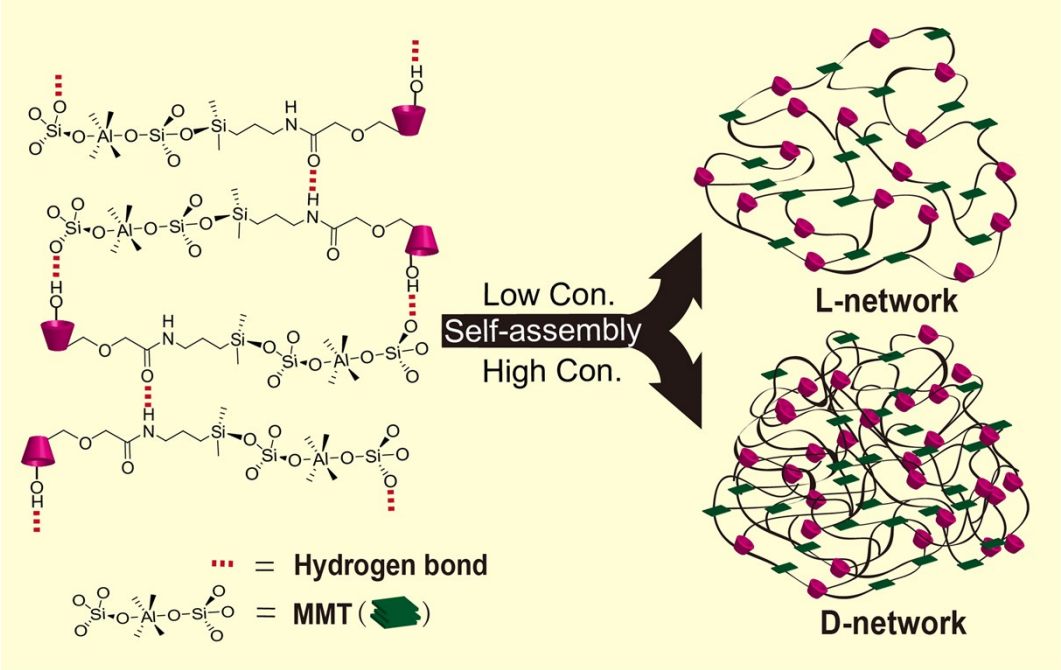

Fig. S1 Illustration of the formation of (a) a loose network structure (L-network) and (b) a dense network structure (D-network).

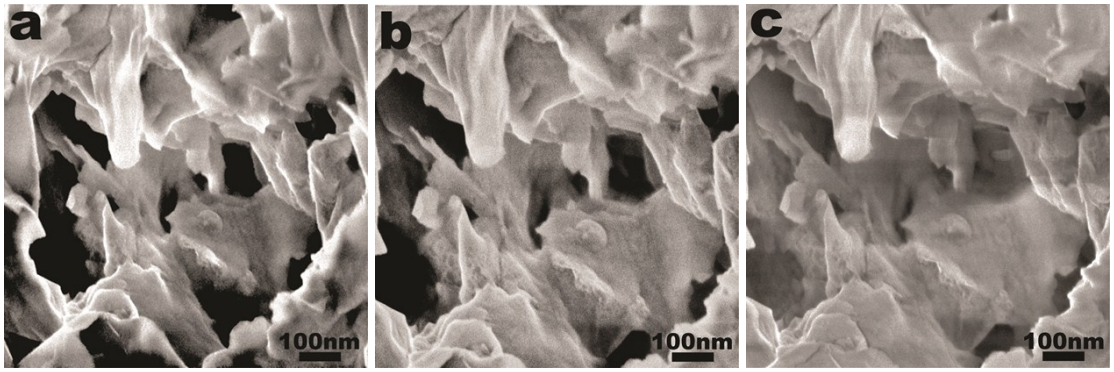

Fig. S2 FE-SEM images depicting the morphology of the swelling kinetics of D-network during 120 h of incubation, (a) 1 day, (b) 3 days and (c) 5 days.

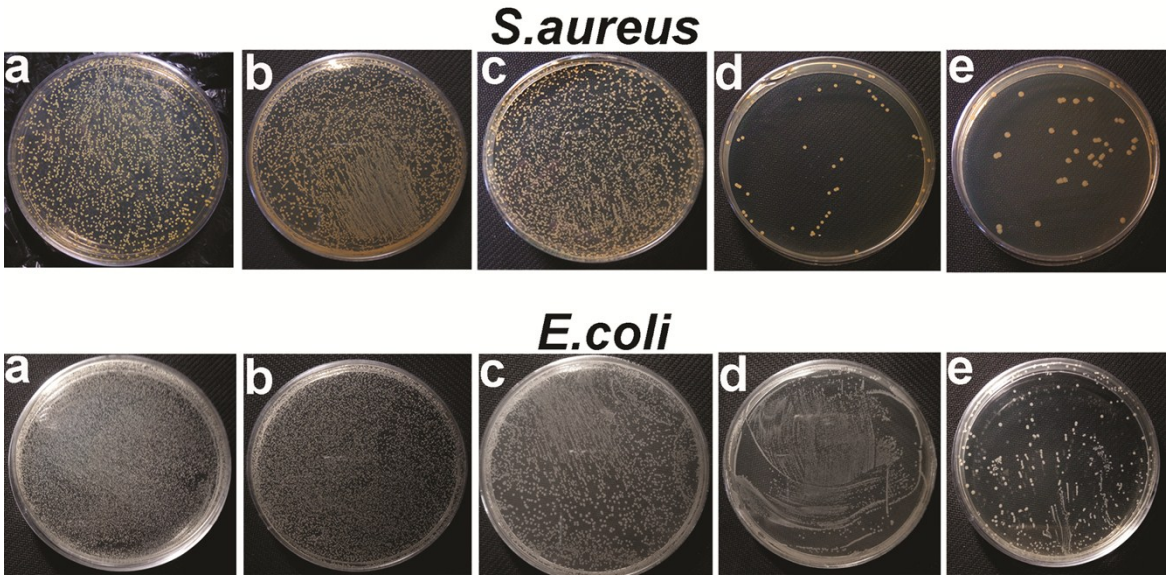

Fig. S3 Photographs of agar plates onto which *S. aureus* (top panel) and *E. coli* (bottom panel) bacterial cells were re-cultivated after treatment at 37° with a control, respectively. (a) 1 day (lag1), (b) 2 days (lag2), (c) 3 days (growth) (d) 4 days (stationary) and (e) 5 days (decay).

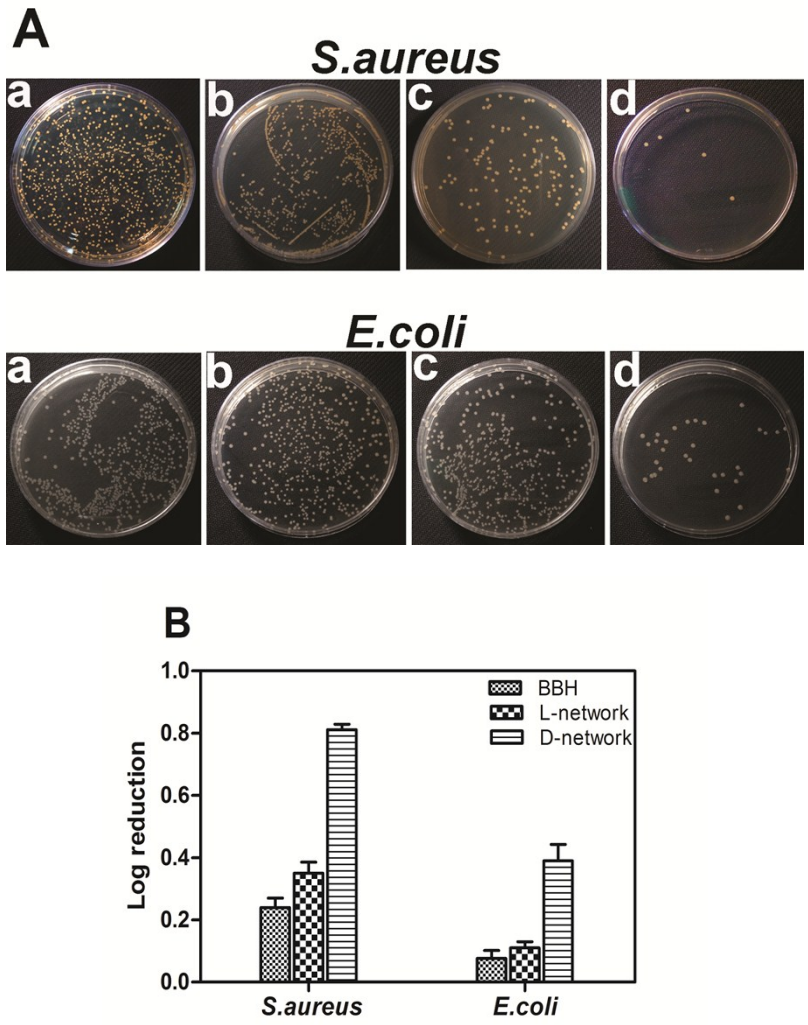

Fig. S4 A Agar plates showing bacterial colonies after different treatment at $10^4\times$ dilution. *S. aureus* (top panel) was re-cultivated after treatment at 37° for 24 h with a control (a), 150 μg/mL of BBH(b) or BBH-loaded L- (c) or D-network (d) at the BBH concentration of 150 μg/mL and *E. coli* (bottom panel) was treated with 0 μg/mL (a), 400 μg/mL of BBH (b) or BBH-loaded L- (c) or D-network (d) at the BBH concentration of 400 μg/mL. **B** The number of bacteria surviving exposure to the same environment.

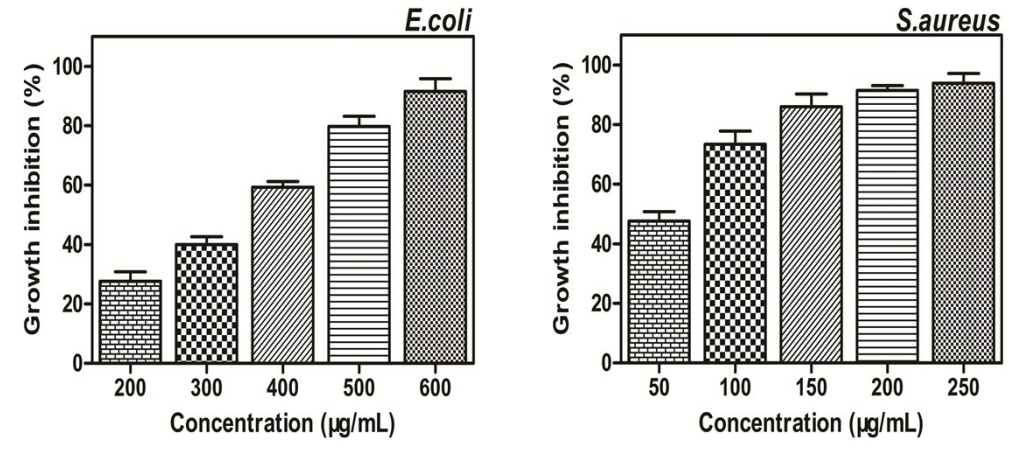

Fig. S5 Percentage growth inhibition of both bacterial strains exposed to BBH-loaded D-network dispersion for 24 h.

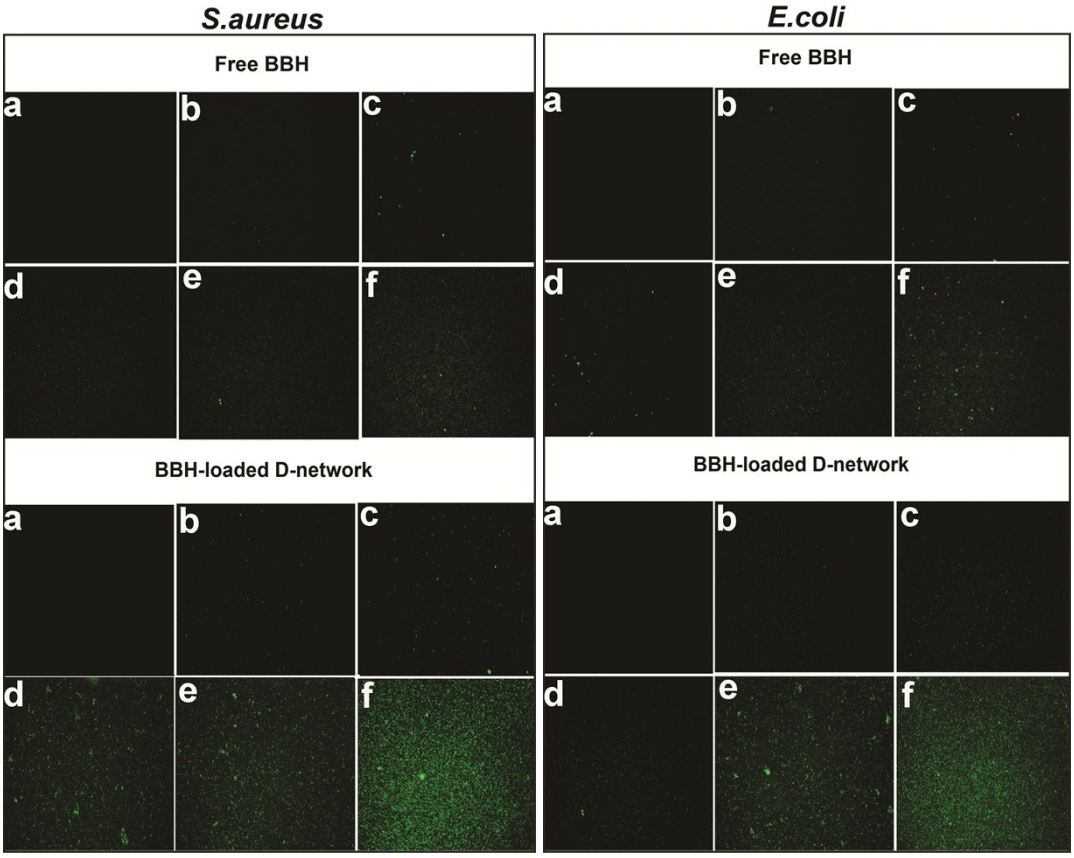

Fig. S6 Fluorescent microscopy images of bacteria: *S. aureus* (left column) was treated for 24 h with 0 μg/mL (a), 50 μg/mL (b), 100 μg/mL (c), 150 μg/mL (d), 200 μg/mL (e), and 250 μg/mL (f) of free BBH or BBH-loaded D-network at the same dosage of BBH, respectively, and *E. coli* (right column) was treated with 0 μg/mL (a), 200μg/mL (b), 300 μg/mL (c), 400 μg/mL (d), 500 μg/mL (e), and 600 μg/mL (f) of free BBH or BBH-loaded D-network at the same concentration of BBH, respectively.

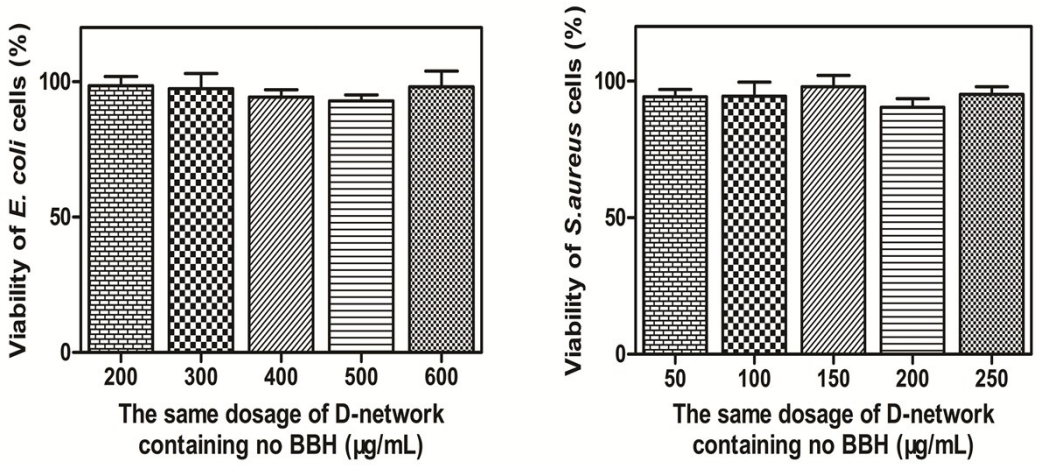

Fig. S7 Cell viability *E. coli* and *S. aureus* in the pristine D-network during 72 h of incubation time.