

Supporting Information

Simple and rapid detection of bacteria using a nuclease-responsive DNA probe

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Table

Table S1. Comparison of detection methods for microorganism contamination.

Method	Components	Detection limit (CFU/ml)	Time for assay	Advantages	Challenges	Reference
Standard plate count	Agar plates	-	several days	Broad linearity range	Skilled personnel, equipment	[12, 13]
Polymerase chain reaction	Polymerase PCR primers	1	> 1 h	Highly sensitive	Skilled personnel, equipment	[14,15]
Immunology-based method	Antibody immobilized bead	10^3	30 min ~ several h	Highly specificity	High cost	[12]
ATP-based bioluminescence method	Luciferase luciferin lysis buffer	$10^3 - 10^4$	1~5 min	Rapid detection, Easy to operate	Cannot determine live and dead cell	[22]
Nuclease-based method	DNA probe lysis buffer reaction buffer	$10^3 - 10^4$	~1 min	Rapid detection Easy to operate Detectable live cells	Relatively low signal	This method

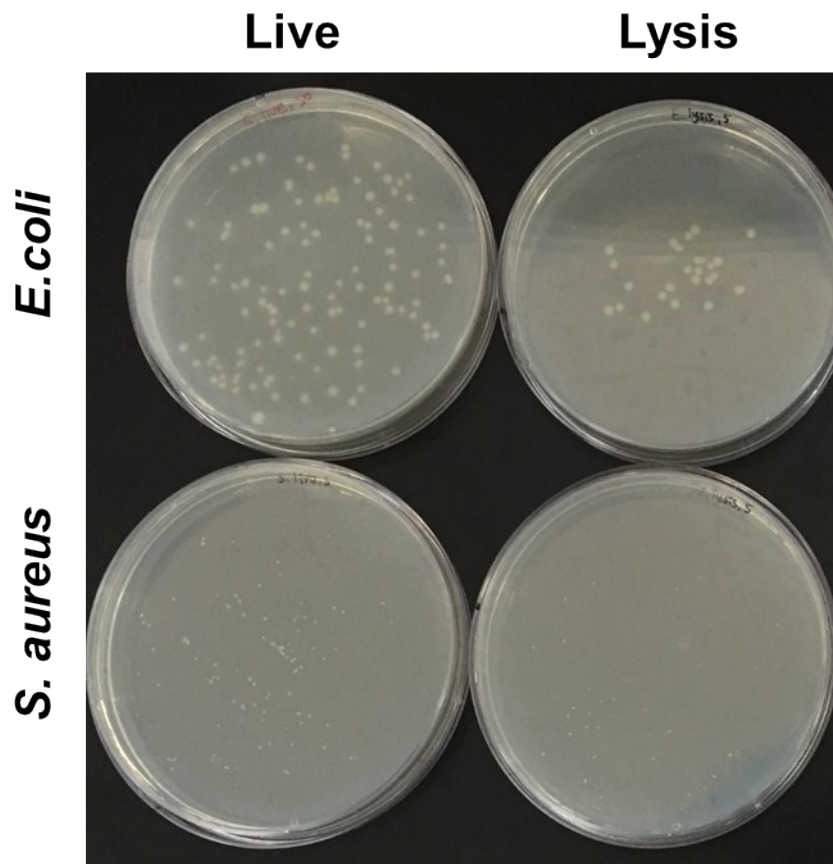


Fig. S1. Optical images of bacteria (*E. coli* and *S. aureus*) on agar plate before and after lysis.

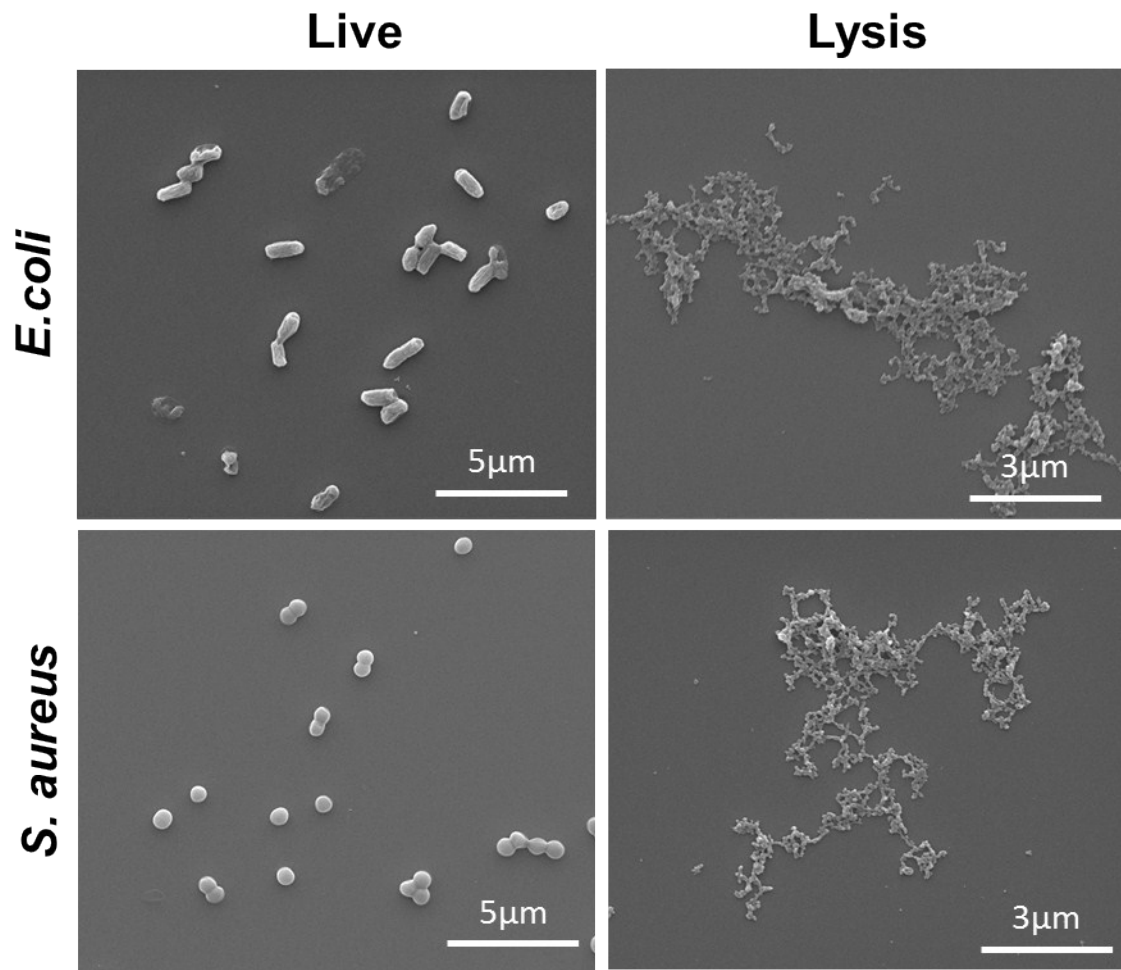


Fig. S2. SEM images of bacteria (*E. coli* and *S. aureus*) before and after lysis

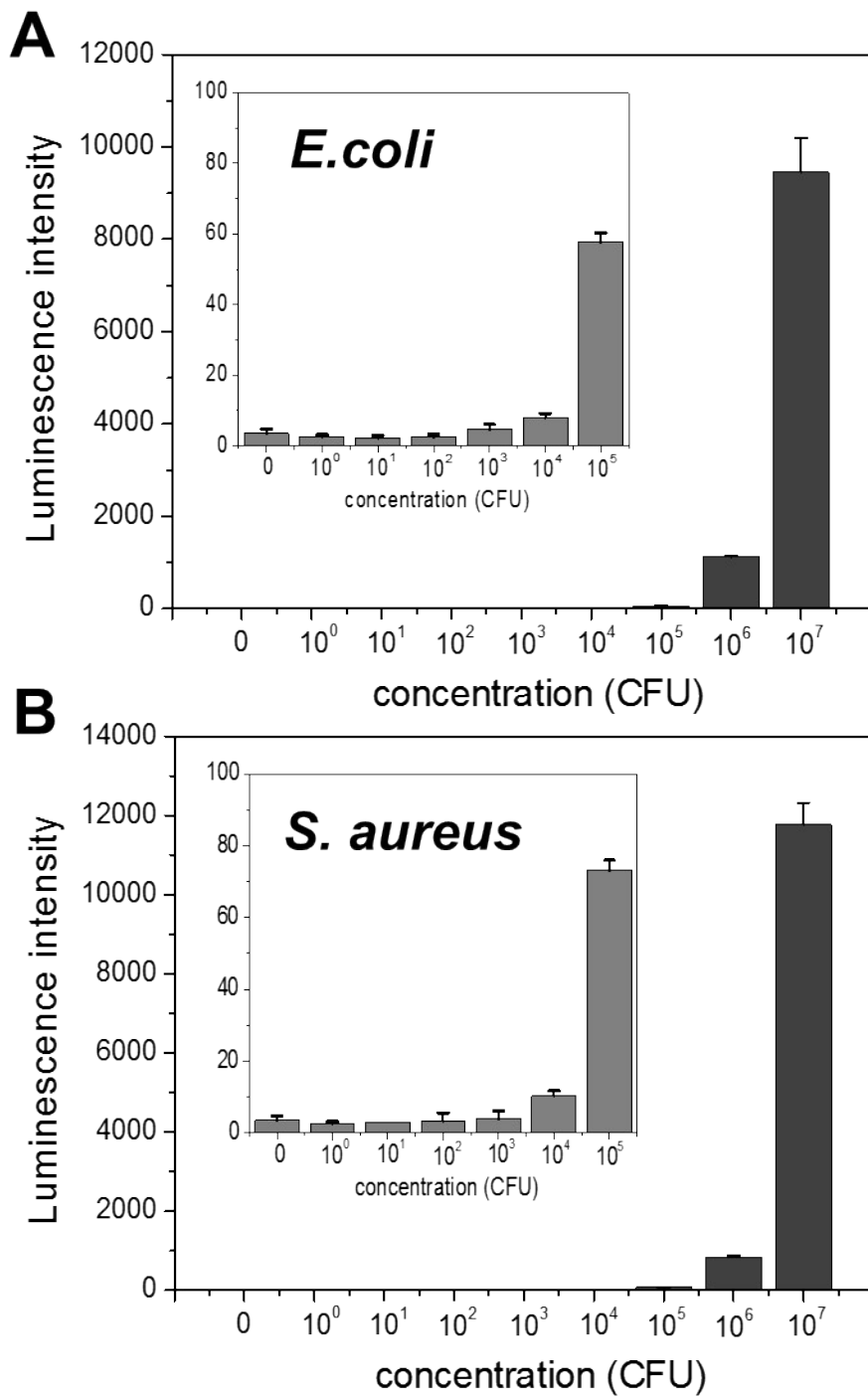


Fig. S3. The concentration-dependent bacteria detection using ATP-based bioluminescence method.

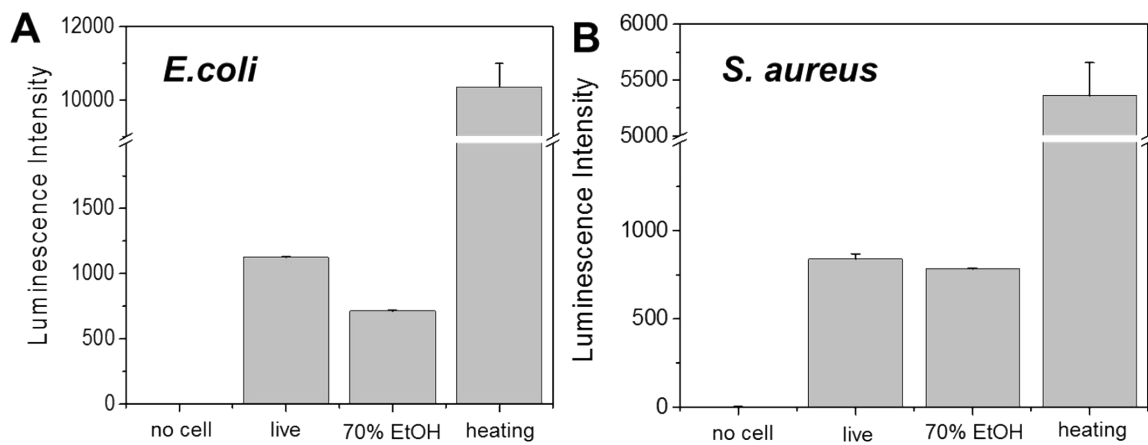


Fig. S4. The luminescence signal of bacteria with different treatments using ATP-based method. The concentrations of *E. coli* and *S. aureus* were 10^6 CFU and 10^6 CFU, respectively.

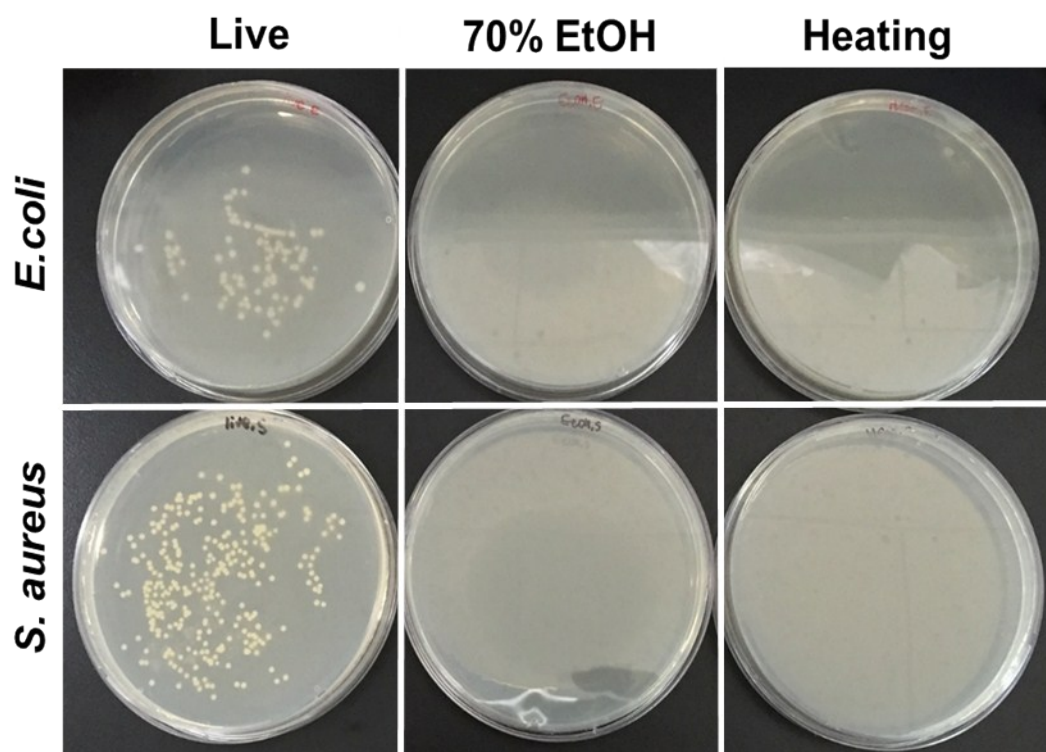


Fig. S5. Optical images of bacteria on agar plate to determine the live and dead bacteria by standard plate counting method.