Electronic Supplementary Material (ESI) for Dalton Transactions.

Disentangling the “tip-effects” enhanced antibacterial mechanism of Ag nanoparticles

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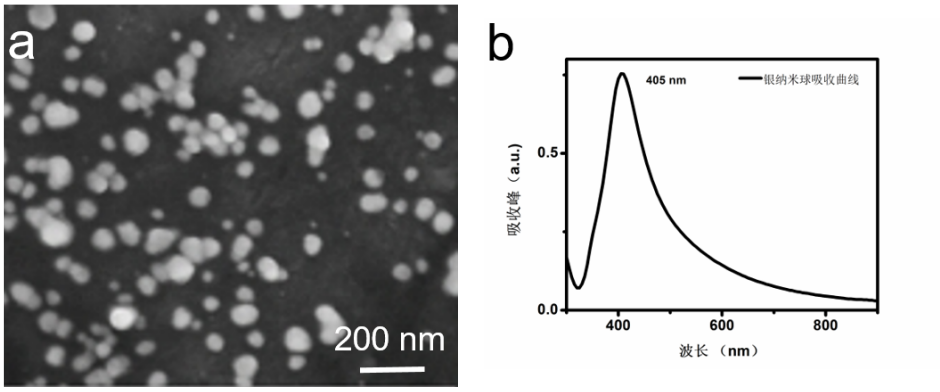

Fig. S1 (a) SEM image and (b) UV-vis-NIR spectrum of Ag nanospheres

Table S1 The diameter of antibacterial zone of nano silver on *E. coli* and *S. aureus* (non-sunshine conditions)

materials	conditions	*E.coli (mm)*	*S.Aureus (mm)*
Ag nanospheres	dark	-	-
	normal	-	-
	light	-	-
Ag nanotriangles	dark	8.67 ± 0.29^{b}	18.83 ± 0.29^{c}
	normal	9 ± 0^{b}	19.67 ± 0.29^{b}
	light	16.33 ± 0.58^{a}	20.67 ± 0.58^{a}

Table S2 The MIC and MBC of Ag NPs on the *E. coli* and *S. aureus* (non-sunshine conditions)

materials	conditions	*E.coli (mm)*	*S.Aureus (mm)*
Ag nanospheres	dark	-	-
	normal	-	-
	light	-	-
Ag nanotriangles	dark	8.67 ± 0.29^{b}	18.83 ± 0.29^{c}
	normal	9 ± 0^{b}	19.67 ± 0.29^{b}
	light	16.33 ± 0.58^{a}	20.67 ± 0.58^{a}

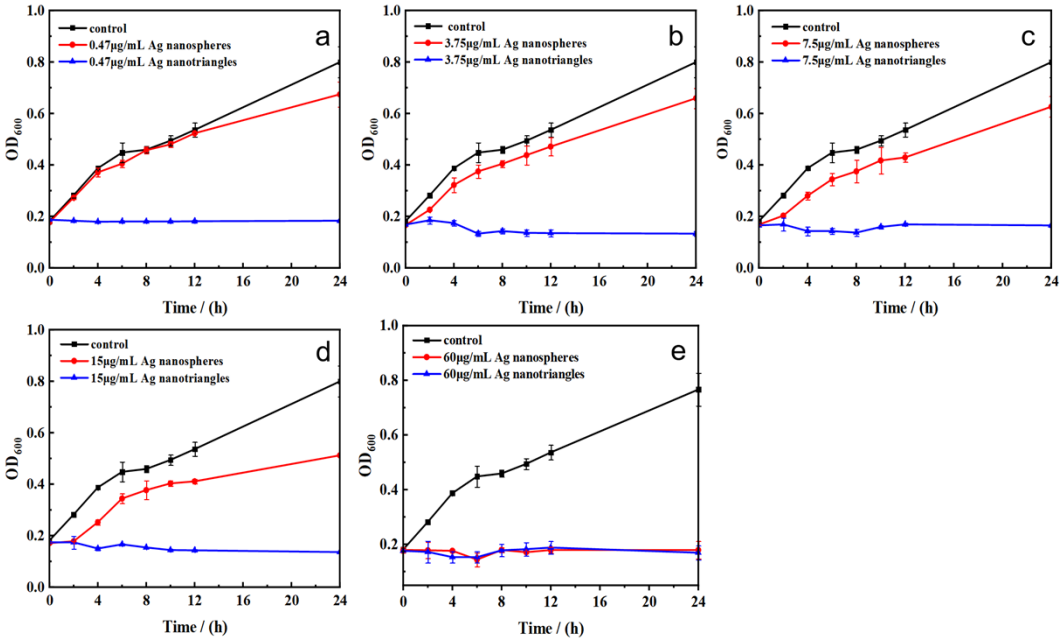

Fig. S2 Effects of Ag nanospheres and nanotriangles with different amounts (a-e: 0.47 $\mu g/mL$; 3.75 $\mu g/mL$; 7.5 $\mu g/mL$; 15 $\mu g/mL$; 60 $\mu g/mL$ on the growth curve of Escherichia coli (non-sunshine conditions).

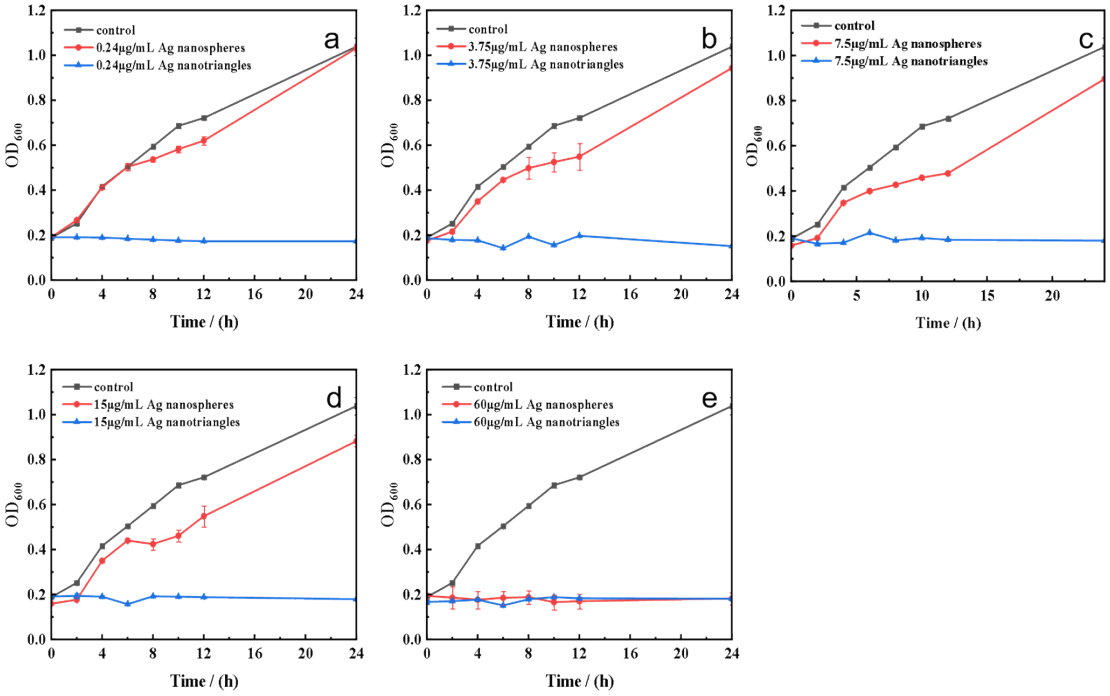

Fig. S3 Effects of Ag nanospheres and nanotriangles with different amounts (a: 0.24 $\mu g/mL$; 3.75 $\mu g/mL$; 7.5 $\mu g/mL$; 15 $\mu g/mL$; 60 $\mu g/mL$ on the growth curve of *S. aureus* (no sunshine).

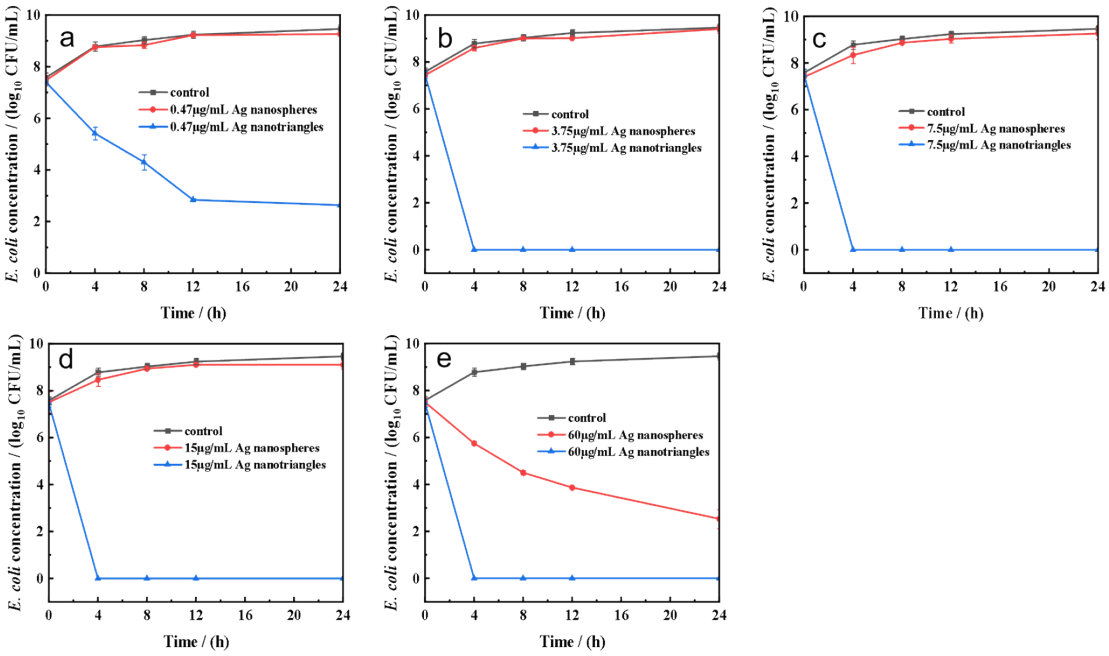

Fig. S4 Effects of Ag nanospheres and nanotriangles with different amounts (a: 0.47 $\mu g/mL$; 3.75 $\mu g/mL$; 7.5 $\mu g/mL$; 15 $\mu g/mL$; 60 $\mu g/mL$ on the Bactericidal Curve of *E. coli*. (no sunshine).

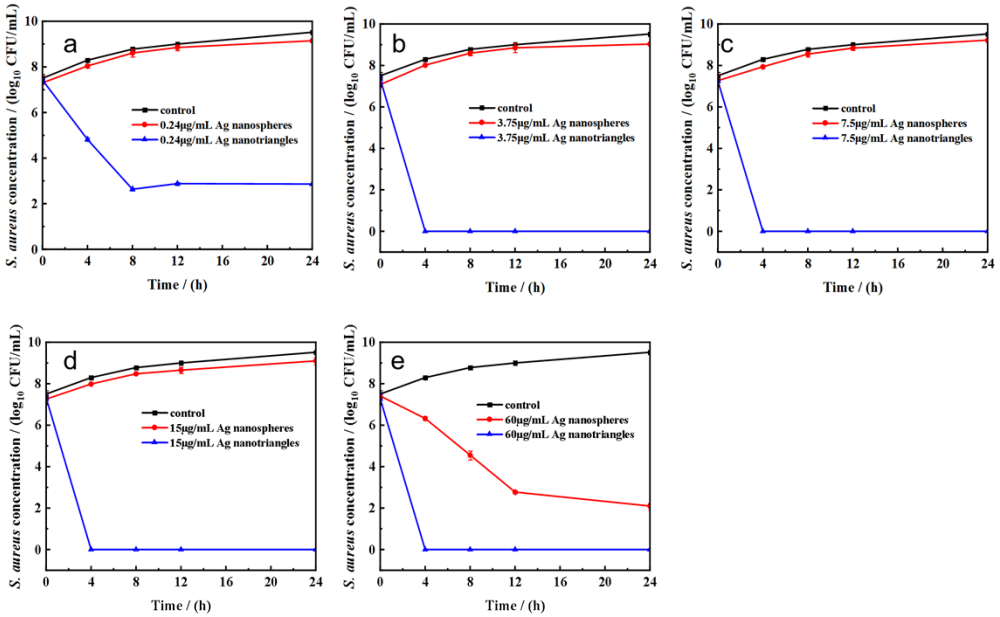

Fig. S5 Effects of Ag nanospheres and nanotriangles with different amounts (a: 0.24 $\mu g/mL$; 3.75 $\mu g/mL$; 7.5 $\mu g/mL$; 15 $\mu g/mL$; 60 $\mu g/mL$ on the Bactericidal Curve of *S. aureus* (no sunshine).

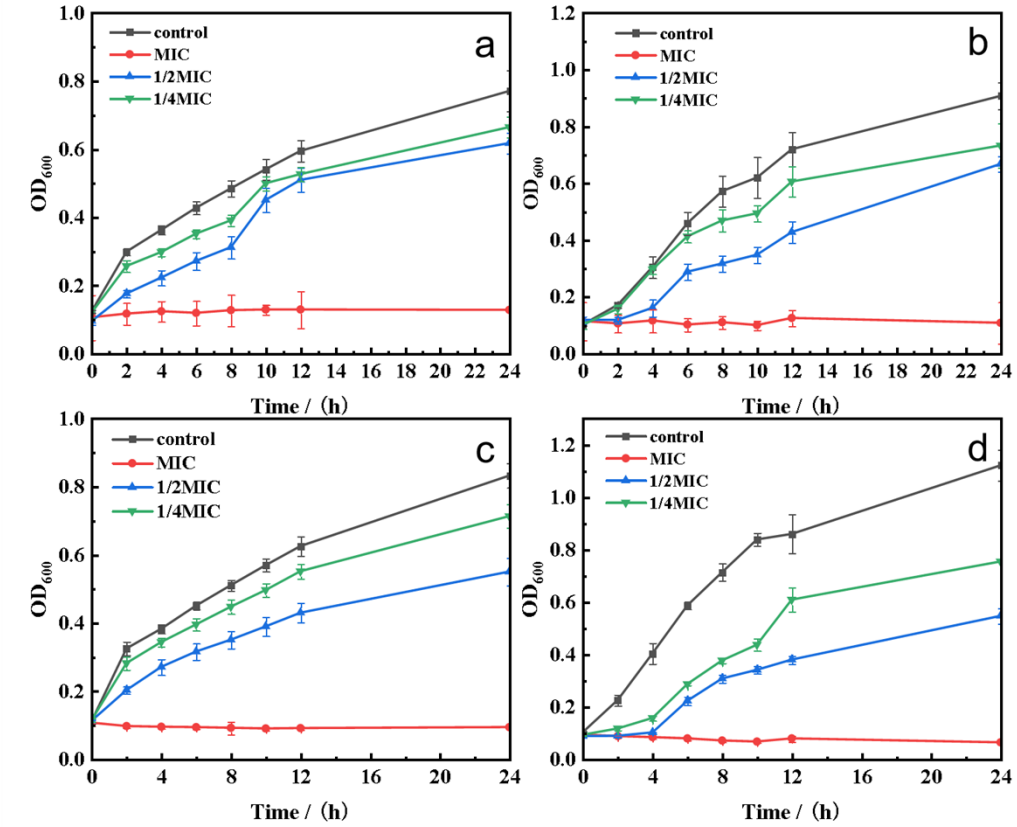

Fig. S6 Effects of Ag nanospheres with different amounts (MIC; 1/2 MIC; 1/4 MIC) on the growth curve of *E. coli*. (a) and *S. aureus* (b) (under sunshine irradiation). Effects of Ag nanotriangles with different amounts (MIC; 1/2 MIC; 1/4 MIC) on the growth curve of *E. coli*. (c) and *S. aureus* (d) (under sunshine irradiation).

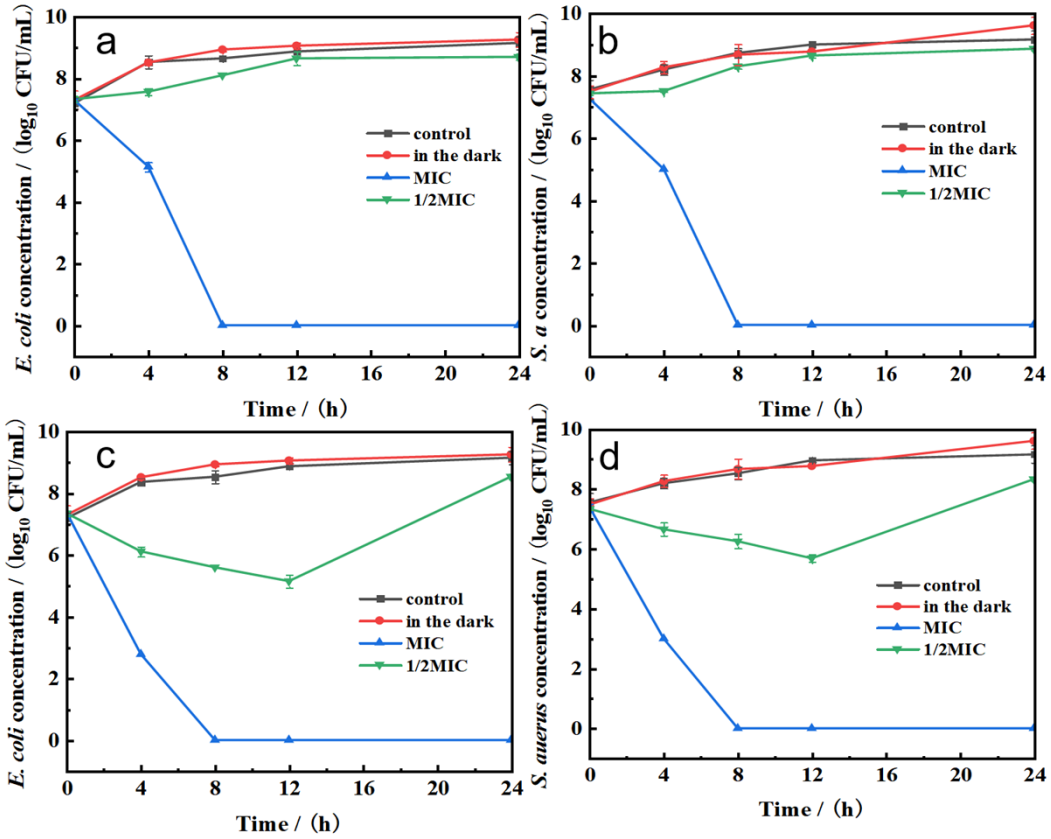

Fig. S7 Effects of Ag nanospheres with different amounts (MIC; 1/2 MIC; 1/4 MIC) on the bactericidal curve of *E. coli*. (a) and *S. aureus* (b) (sunshine present). Effects of Ag nanotriangles with different amounts (MIC; 1/2 MIC; 1/4 MIC) on the bactericidal curve of *E. coli*. (c) and *S. aureus* (d) (under sunshine irradiation).

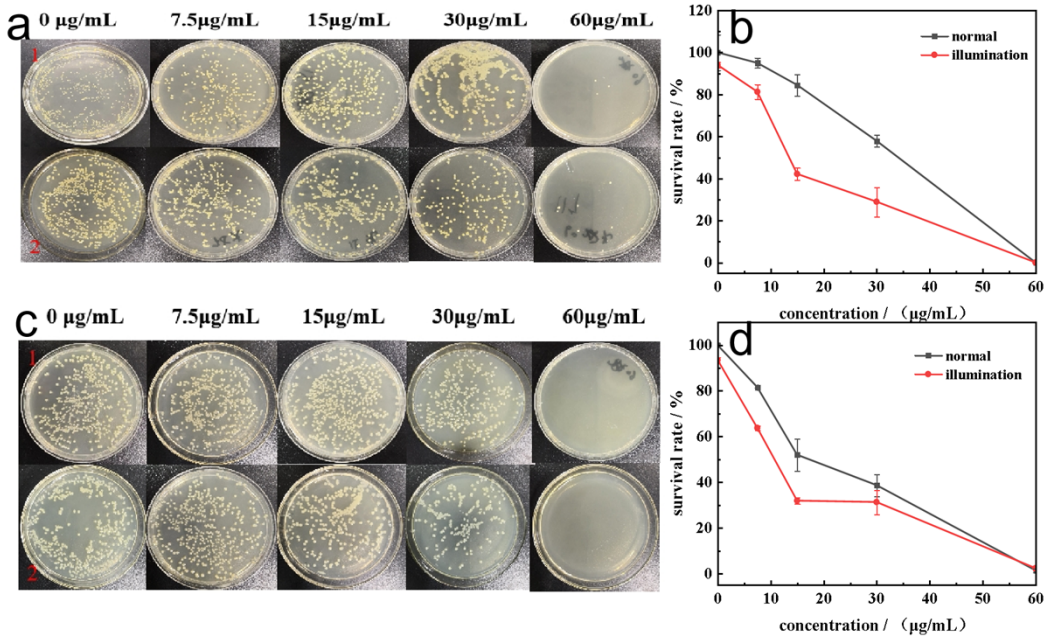

Fig. S8 The photographs of *E. coli* (a) and *S. aureus* (c) treated with different amounts of Ag nanospheres and their corresponding survival rate (b) and (d), respectively (under sunshine irradiation).

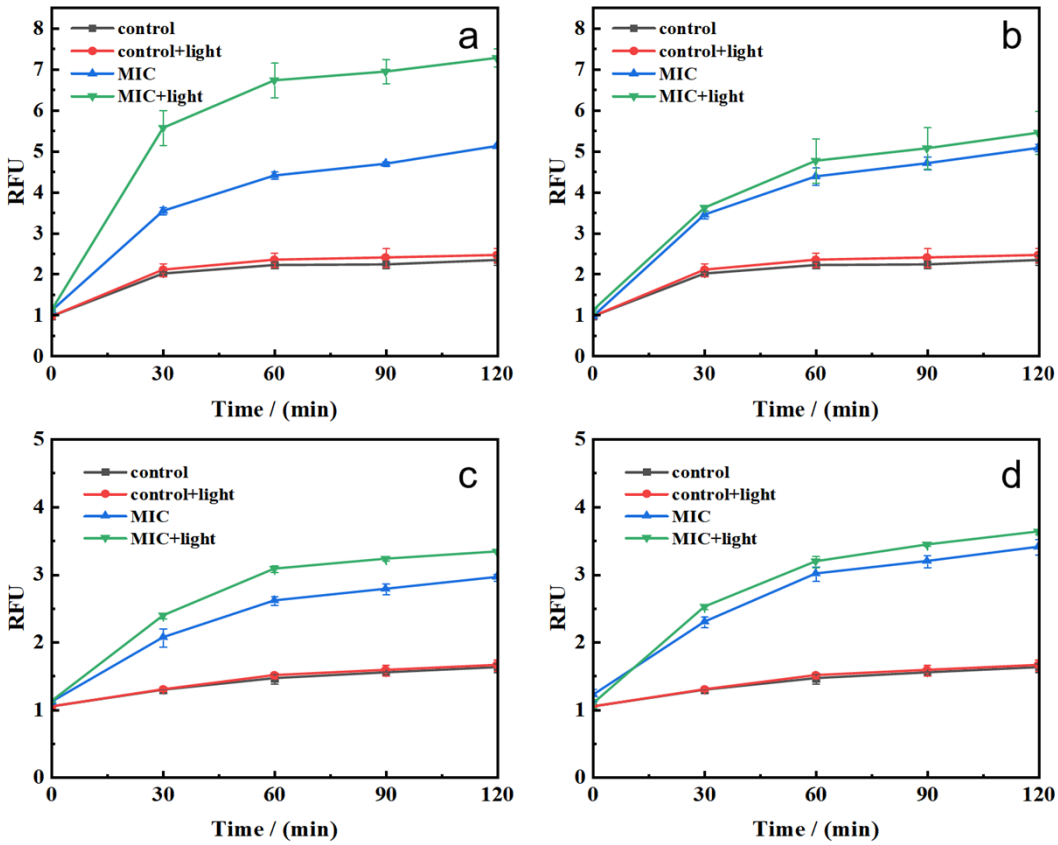

Fig. S9 ROS generation curves of *E. coli* treated with the Ag nanospheres (a) and Ag nanotriangles (b). ROS generation curves of *S. aureus* treated with Ag nanospheres (c) and Ag nanotriangles (d). The concentration of Ag NPs is at the MIC value.

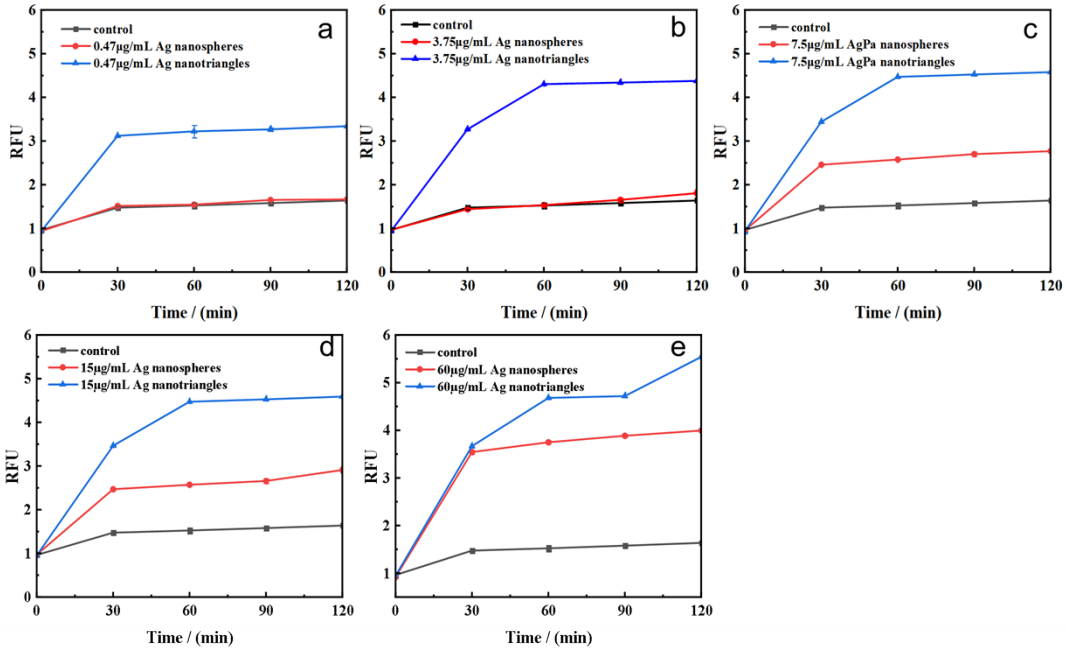

Fig. S10 ROS generation efficiency of *E. coli* treated with the Ag nanospheres and nanotriangles (a: 0.47 $\mu g/mL$; 3.75 $\mu g/mL$; 7.5 $\mu g/mL$; 15 $\mu g/mL$; 60 $\mu g/mL$.

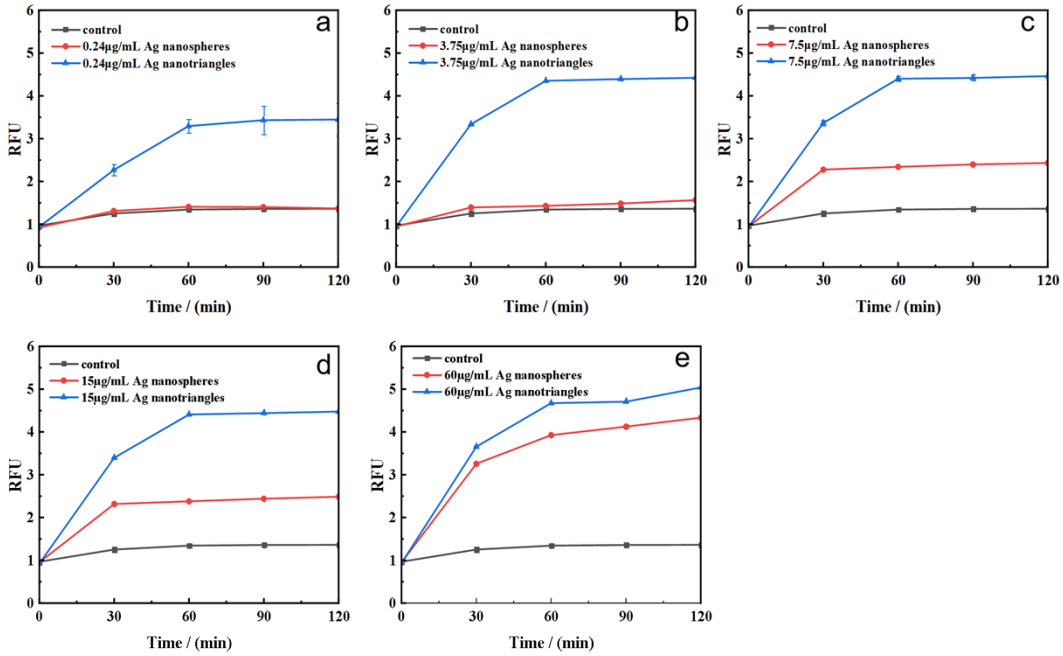

Fig. S11 ROS generation efficiency of *S. aureus* treated with Ag nanospheres and nanotriangles (a: 0.24 $\mu g/mL$; 3.75 $\mu g/mL$; 7.5 $\mu g/mL$; 15 $\mu g/mL$; 60 $\mu g/mL$.