

Supporting Information

Urchin-inspired spiky microparticles for enhanced mild photothermal antibacterial therapy and wound healing Shuai

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This Supporting information include:

Fig. S1 (a) SEM images of SMPs, scale bar = 200 nm and (b) scale bar = 2 μ m.

Fig. S2. Size distribution of SMPs.

Fig. S3 (a) UV-vis spectra of different concentration of hemin. (b) the linear relationship between A400 value and hemin concentration.

Fig. S4 XPS survey scan of SMPs.

Fig. S5 (a) TEM images of SMPs, scale bar = 500 nm, (b) scale bar = 100 nm and (c) scale bar = 20 nm.

Fig. S6 The time-dependent photothermal image of PBS solution, AgNPs solution and hemin solution under 808 nm laser irradiation (0.75 W/cm²).

Fig. S7 DSC curves of lauric acid (LA), stearic acid (SA) and SMPs.

Fig. S8 (a) Bacterial colonies and (b) survival rates of *P.aeruginosa* after different treatments under NIR laser irradiation for 10 min. Data are presented as mean \pm SD, ****p < 0.0001 denote the statistical significance.

Fig. S9 Bacterial plates from wound tissue at different dilution factors.

Fig. S10 Immunohistochemical staining images of pro-inflammatory factors TNF- α and IL-1 β in different regions.

Fig. S11 The cytotoxicity assessment of SMPs under NIR laser irradiation (1 W/cm²) for 10 min.

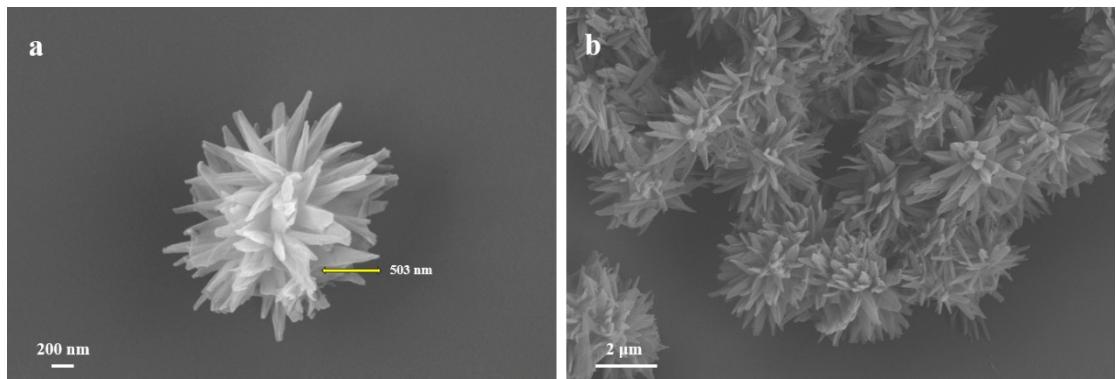


Fig. S1 (a) SEM images of SMPs, scale bar = 200 nm and (b) scale bar = 2 μ m.

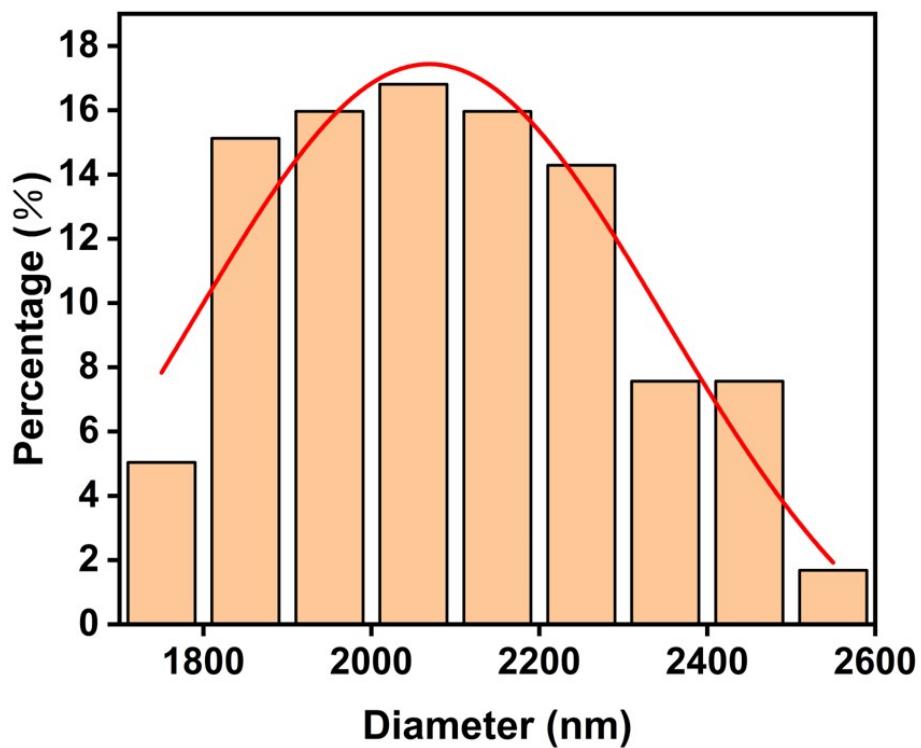


Fig. S2 Size distribution of SMPs.

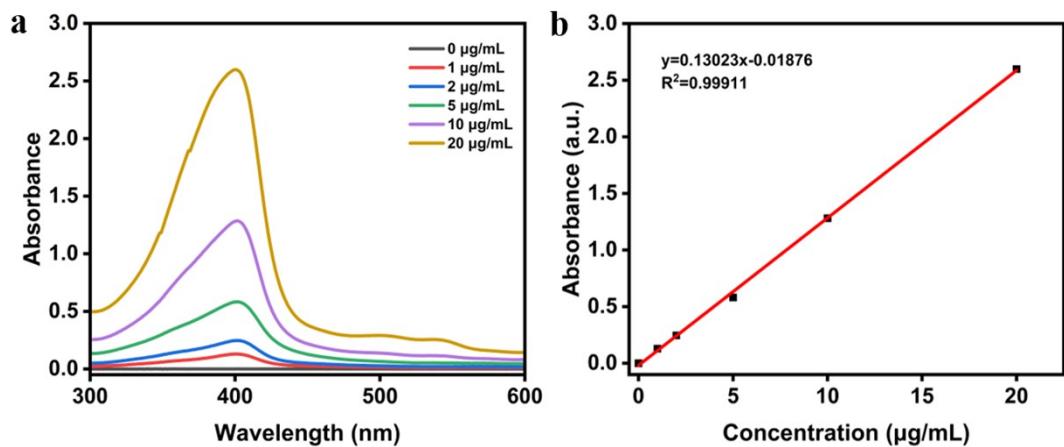


Fig. S3 (a) UV-vis spectra of different concentration of hemin. (b) The linear relationship between A₄₀₀ value and hemin concentration.

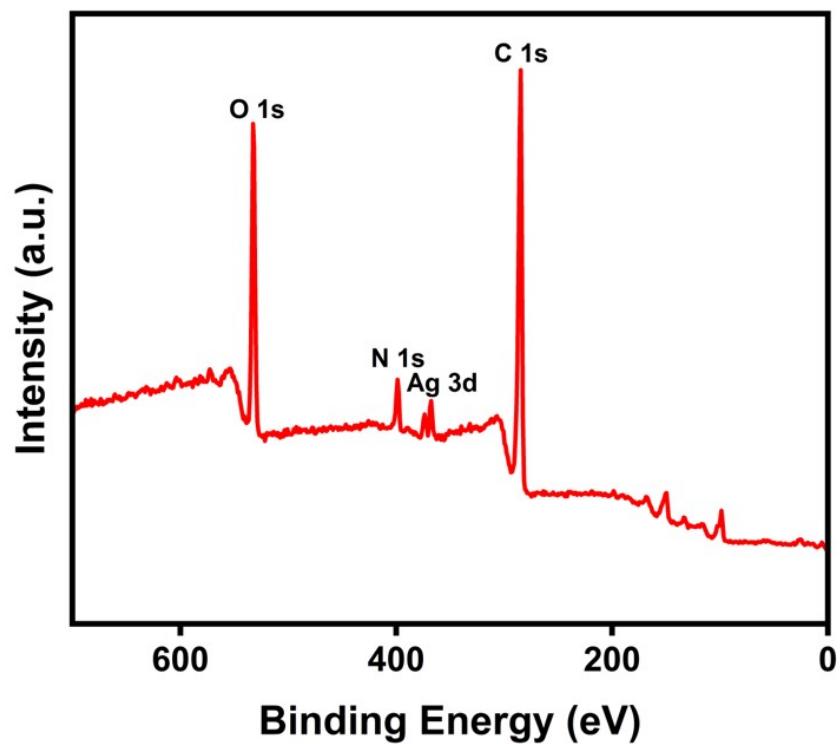


Fig. S4 XPS survey scan of SMPs.

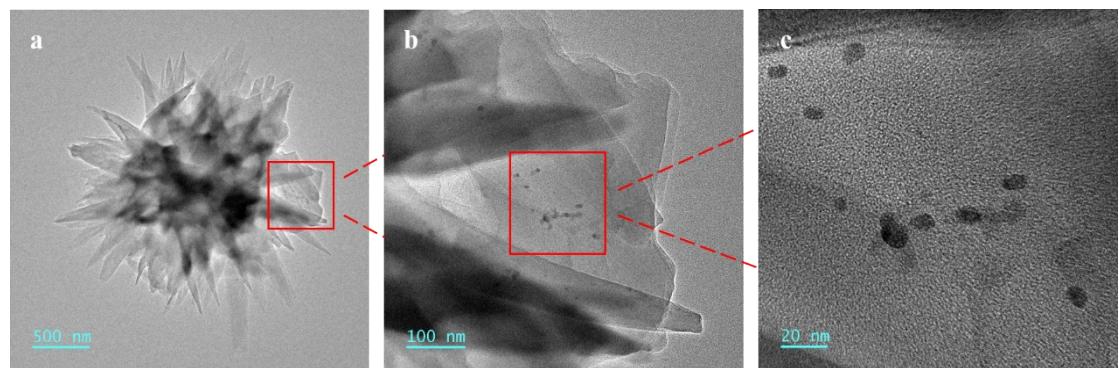


Fig. S5 (a) TEM images of SMPs, scale bar = 500 nm, (b) scale bar = 100 nm and (c) scale bar = 20 nm.

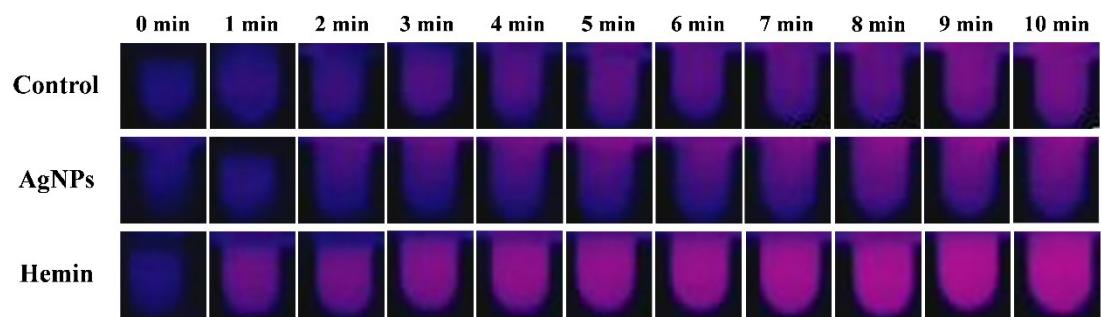


Fig. S6 The time-dependent photothermal image of PBS solution, AgNPs solution and hemin solution under 808 nm laser irradiation (0.75 W/cm²).

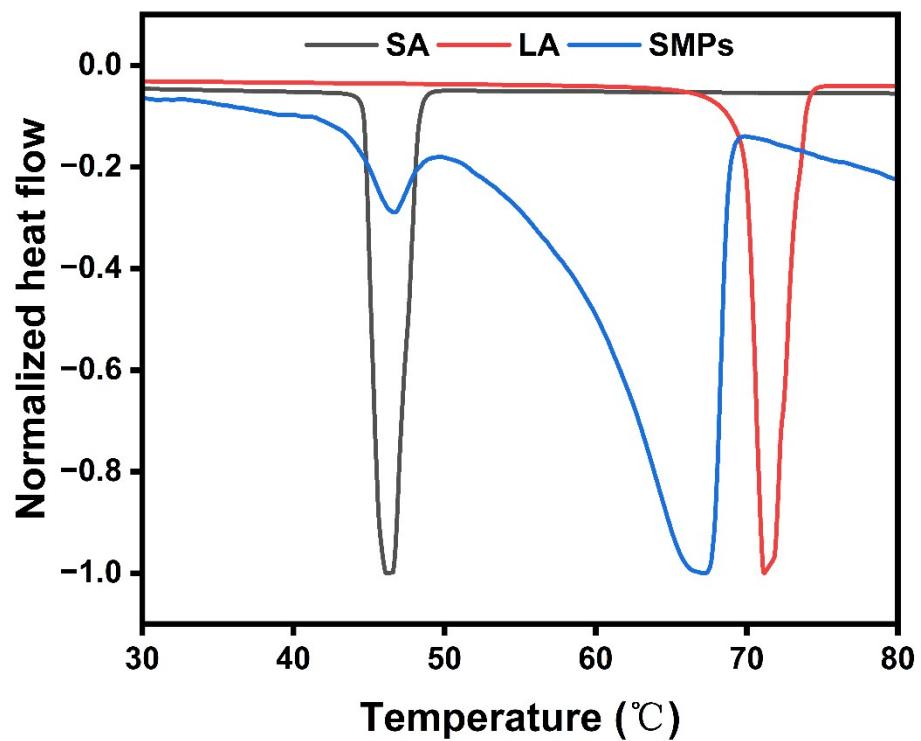


Fig. S7 DSC curves of lauric acid (LA), stearic acid (SA) and SMPs.

P. aeruginosa

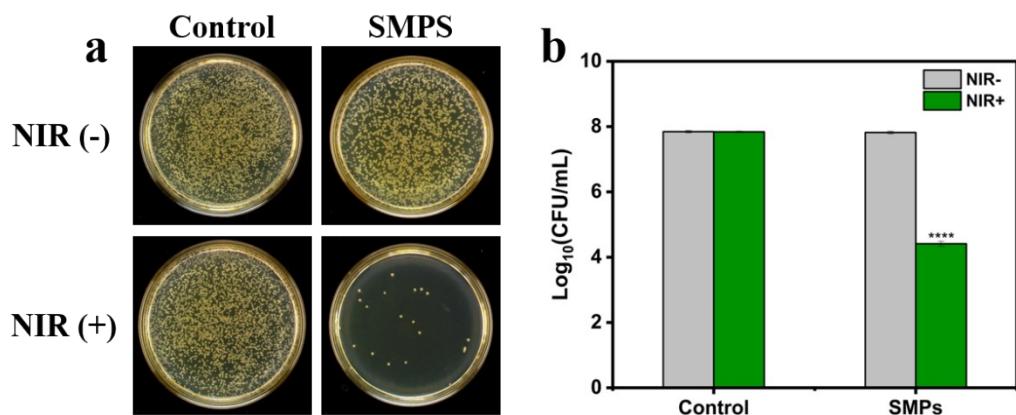


Fig. S8 (a)Bacterial colonies and (b) survival rates of *P.aeruginosa* after different treatments under NIR laser irradiation for 10 min. Data are presented as mean \pm SD, ***p < 0.0001 denote the statistical significance.

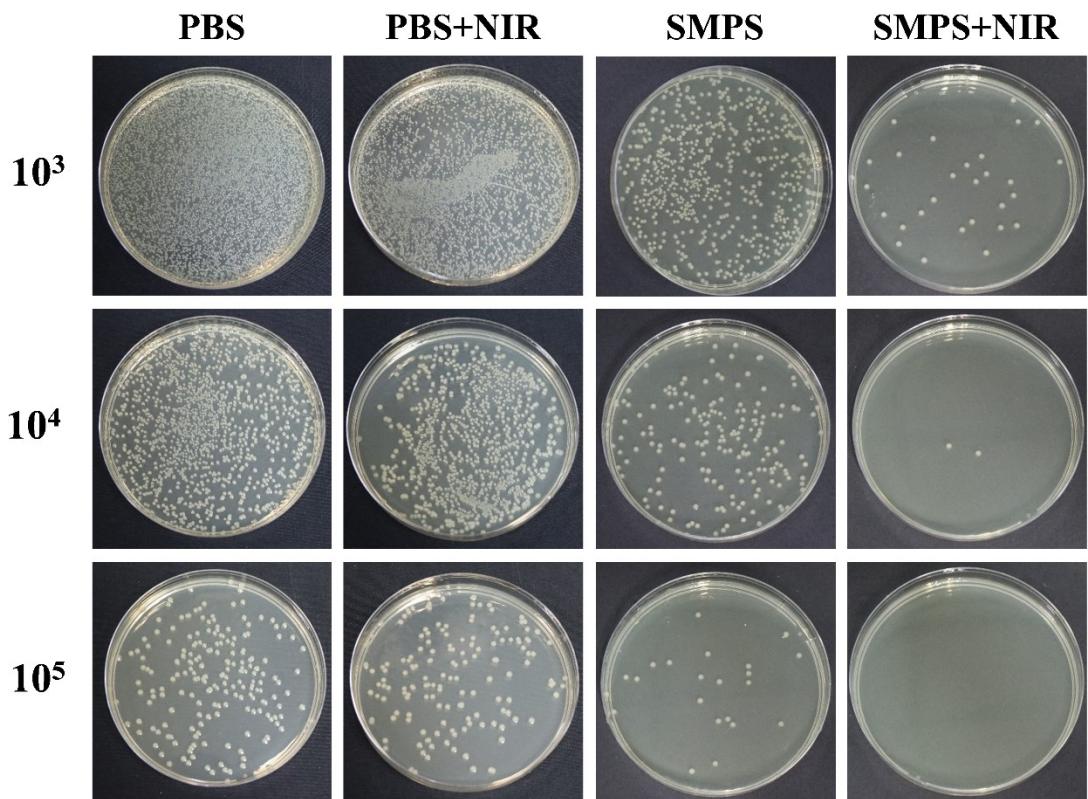


Fig. S9 Bacterial plates from wound tissue at different dilution factors.

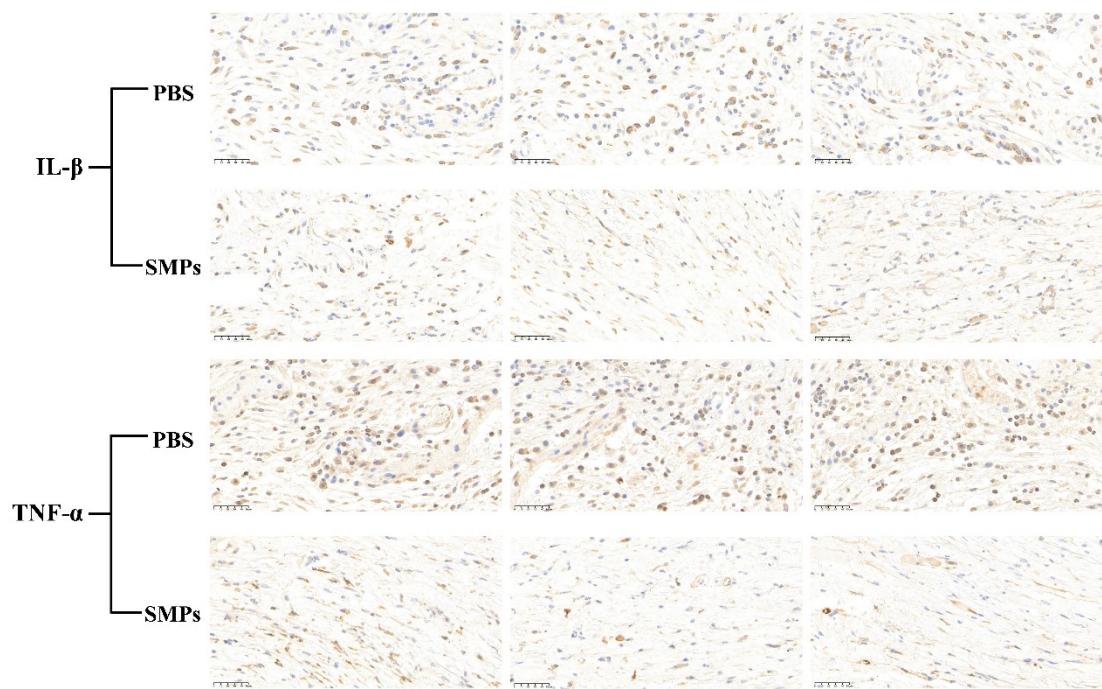


Fig. S10 Immunohistochemical staining images of pro-inflammatory factors TNF- α and IL-1 β in different regions.

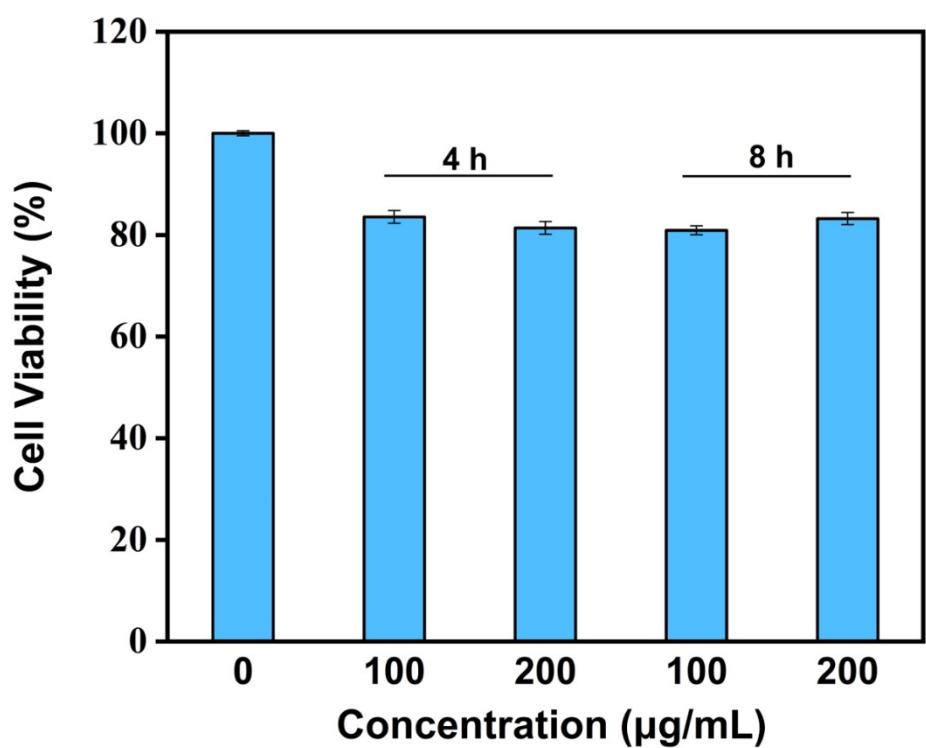


Fig. S11 The cytotoxicity assessment of SMPs under NIR laser irradiation (1 W/cm^2) for 10 min.