ARTICLE

Sunflower pollen-derived microcapsules adsorb light and bacteria for enhanced antimicrobial photothermal therapy

Received 00th January 20xx,
Accepted 00th January 20xx

DOI: 10.1039/x0xx00000x

Yao Yang,[‡a] Bin Wang,[‡ab] Qian Liu,[c] Zhenghua Wei,[ab] Ziye Mou,[d] Quan Li,[ad] Chunfa Chen,[ab] Zaichun You,[d] Bang Lin Li,[e] Guansong Wang,*[ab] Zhi Xu,*[abf] Hang Qian*[abf]

Supplementary Material

Table S1 Elemental analysis of SEC and H-SECs.

	C %	H %	S %	N %
SECs	54.7±0.02	7.39±0.02	1.29±0.21	0.87±0.02
HSECs	56.3±0.10	7.19±0.01	3.35±0.01	2.58±0.02

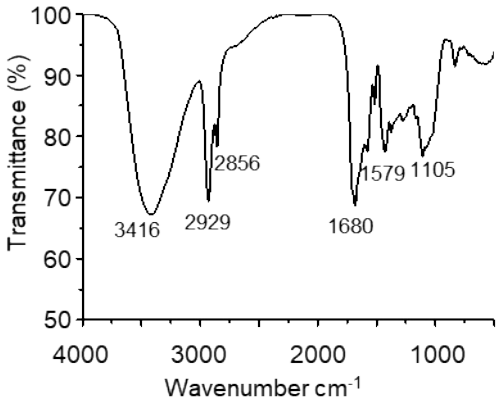

Fig. S1 FTIR spectrum of SECs.

[a] *Institute of Respiratory Diseases, Xinqiao Hospital, Third Military Medical University, 183 Xinqiao Street, Chongqing 400037, China. E-mail: hqian@tmmu.edu.cn, wanggs2003@163.com, xu_zhi999@163.com.*
[b] *Chongqing Key Laboratory of Precision Medicine and Prevention of Major Respiratory Diseases, Chongqing 400037, China*
[c] *Laboratory of Pharmacy and Chemistry, and Laboratory of Tissue and Cell Biology, Lab Teaching & Management Center, Chongqing Medical University, Chongqing 400016, China.*
[d] *Department of General Practice, Xinqiao Hospital, Third Military Medical University, Chongqing, 400037 (China)*
[e] *School of Chemistry and Chemical Engineering, Southwest University, Chongqing 400715, China.*
[f] *Yu-Yue Pathology Scientific Research Center, Chongqing, China*
† Footnotes relating to the title and/or authors should appear here.
Electronic Supplementary Information (ESI) available: [details of any supplementary information available should be included here]. See DOI: 10.1039/x0xx00000x

‡These authors contributed equally to this manuscript

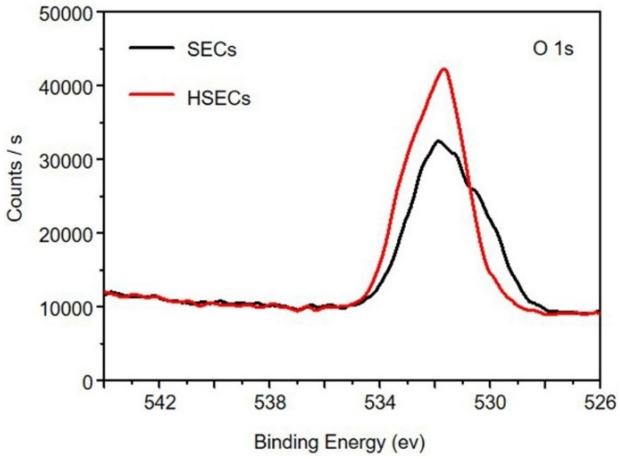

Fig. S2 High resolution XPS spectrum of O 1s.

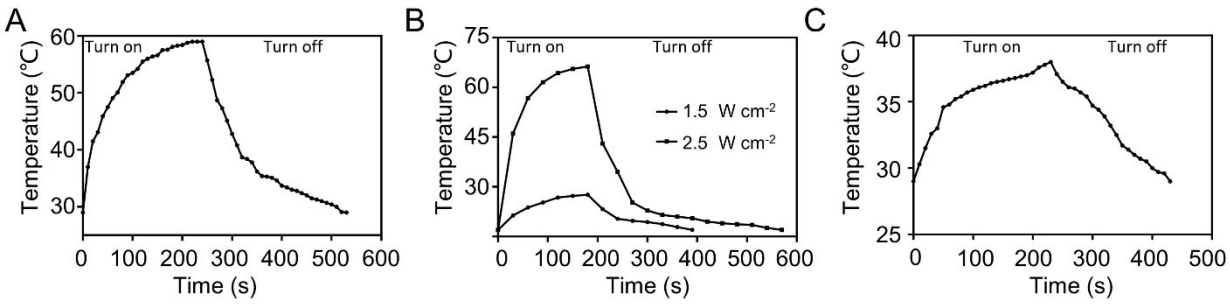

Fig. S3 (A) Photothermal effects of HSECs at 2.0 W cm^{-2} (B) Photothermal effects of HSECs at 1.5 W cm^{-2} and 2.5 cm^{-2}. (C)Photothermal effects of SECs at 2.0 W cm^{-2}.

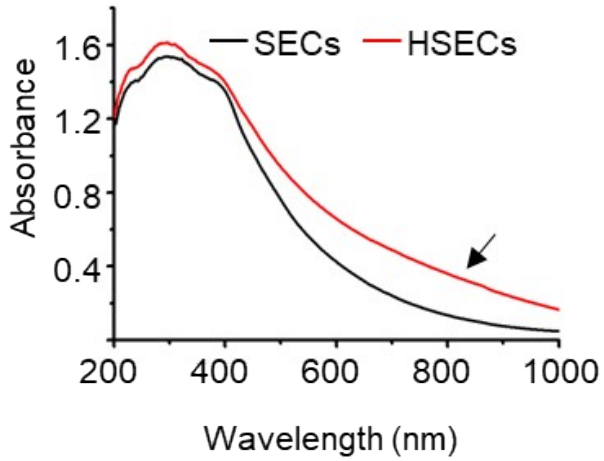

Fig. S4 UV-Vis-NIR spectrum of SECs and HSECs.

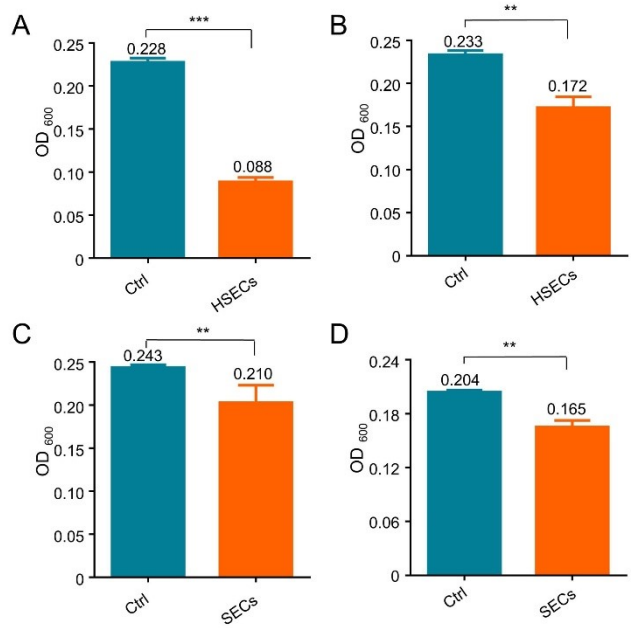

Fig. S5 (A) The OD $_{600}$ of the supernatant of HSECs and *S. aureus* mixture solution. (B) The OD $_{600}$ of the supernatant of HSECs and *E. coil* mixture solution. (C) The OD $_{600}$ of the supernatant of SECs and *S. aureus* mixture solution. (D) The OD $_{600}$ of the supernatant of SECs and *E. coil* mixture solution (t-test, n=4, **P < 0.01, ***P < 0.001).

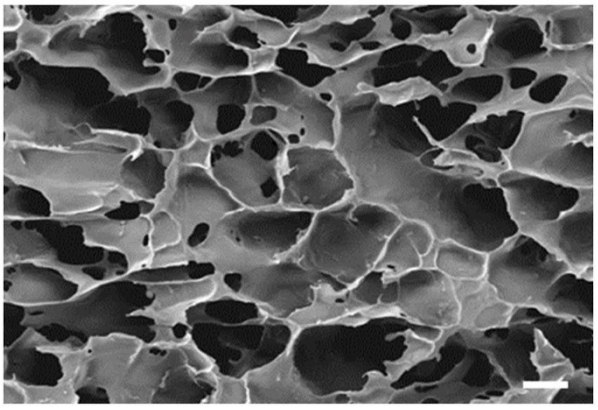

Fig. S6 SEM images of HSECs@Curdlan. Scale bar: 5 μm

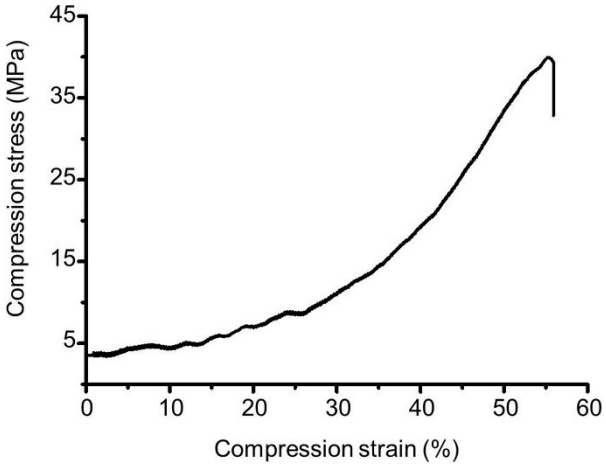

Fig. S7 compression strain-stress curves of HSECs@Curdlan.

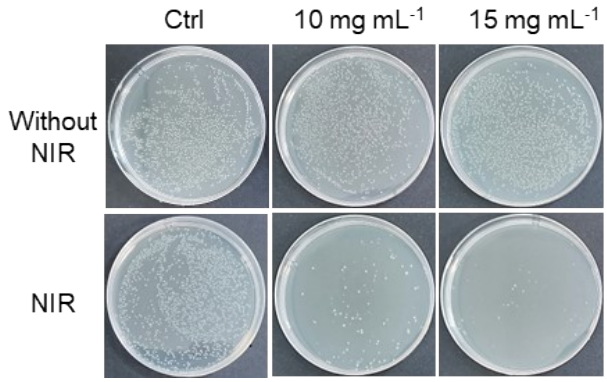

Fig. S8 NIR light-driven antibacterial effects of HSECs@Curdlan against *E. coil*. Representative Photographs of *E. coil*. colony plates after being treated with HSECs@Curdlan containing different concentrations of HSECs.

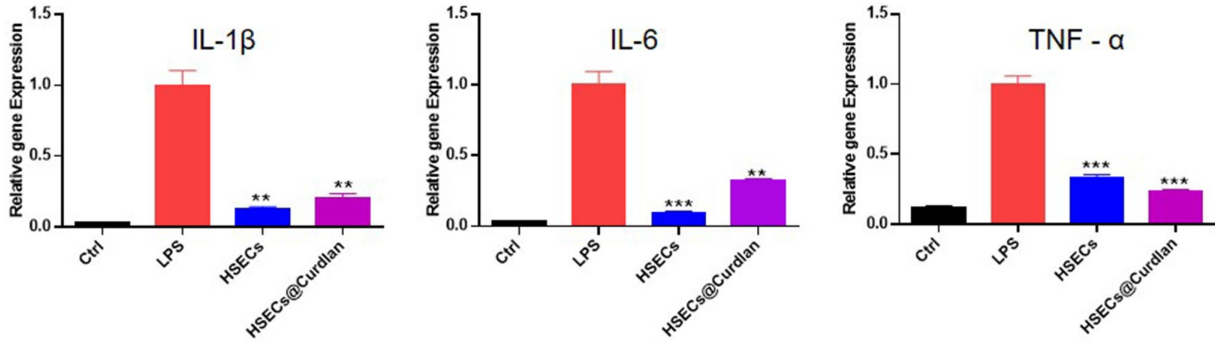

Fig. S9 Relative gene expression of interleukin-1β (IL-1β), TNF-α, interleukin-6 (IL-6). The LPS group was set as positive control compared to the LPS group (t-test, n=3, *P < 0.05, **P < 0.01, ***P < 0.001).

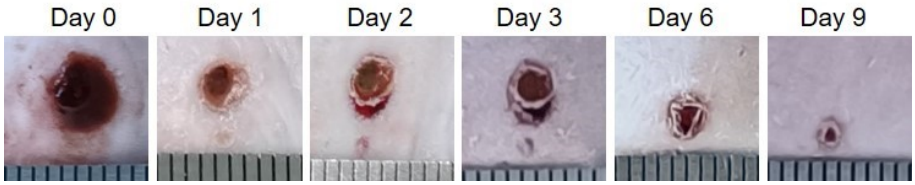

Fig. S10 The HSECs@Curdlan hydrogel in wound beds from day 0 to day 9.

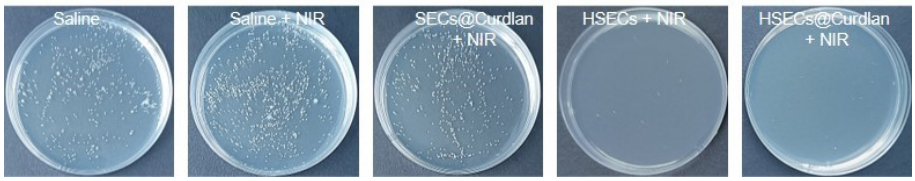

Fig. S11 Representative Photographs of *S. aureus* colony plates of different groups.

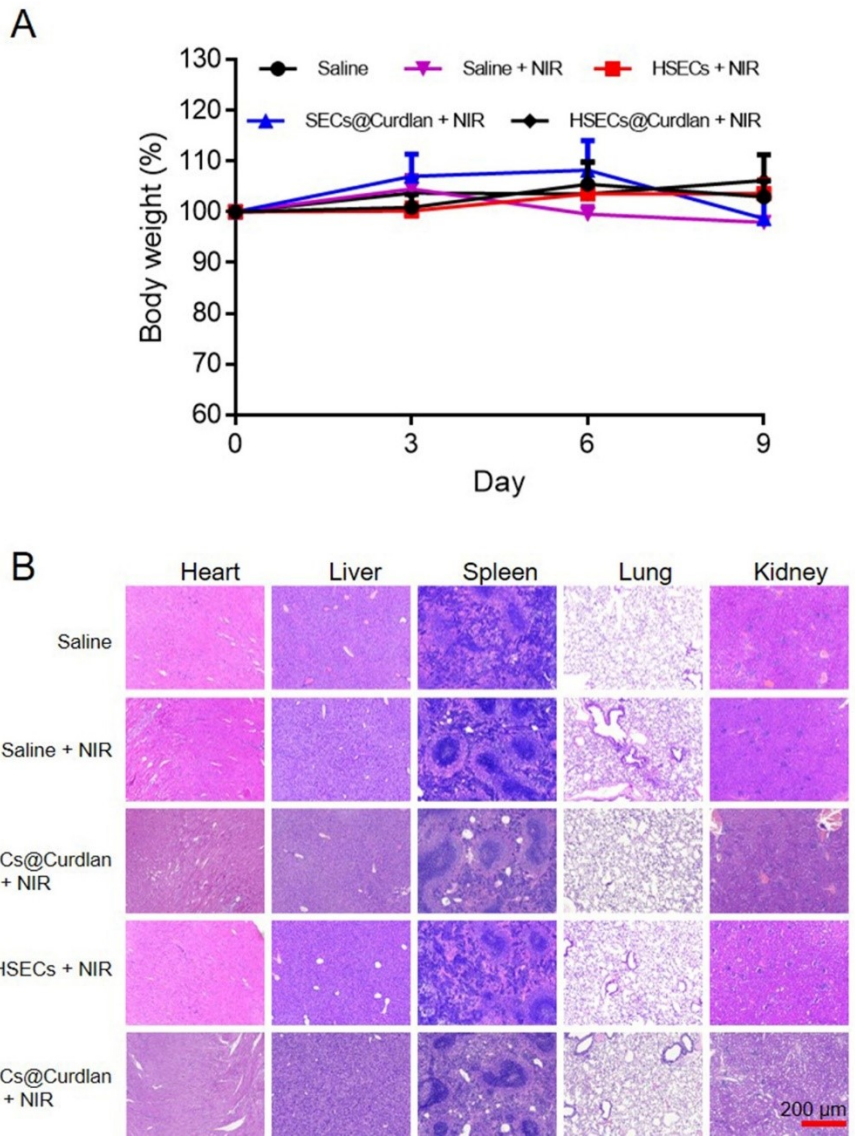

Fig. S12 (A) Body weight change curves of each group at day 0, 3, 6, 9 (n=3). (B) H. E. staining of heart, liver, spleen, lung, kidney of different groups at day 9.

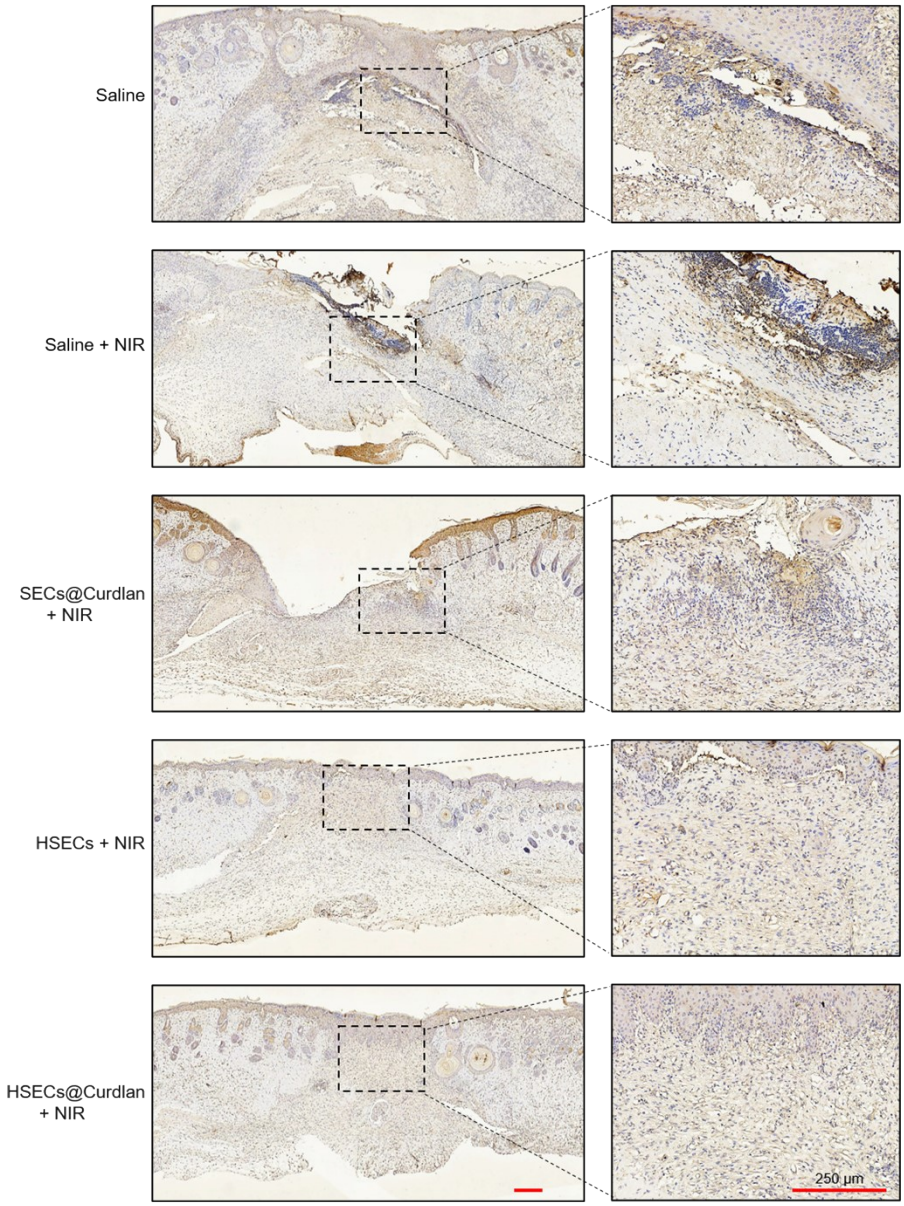

Fig. S13 Immunohistochemical images of IL-6 of different groups on day 9, the scale bar is 250 μm.