

Supporting Information

One Pot Synthesis of SeTe-ZnO Nanoparticles for Antibacterial and Wound Healing applications

Yushu Wang^{a†}, Shahin Shah Khan^{b†}, Irfan Ullah^b, Ahmed Rady^c, Badr Aldahmash^c, Yingjie Yu^{d*}, Luo Liu^{b*}, Xiulong Zhu^{a*}

a. The People's Hospital of Gaozhou, National Drug Clinical Trial Institution, Gaozhou City 525200, China

b. College of Life Science and Technology, Beijing University of Chemical Technology, No. 15 East Road of North Third Ring Road, Beijing 100029, China

c. Department of Zoology, College of Science, King Saud University, P.O. Box 2455, Riyadh 11451, Saudi Arabia

d. State Key Laboratory of Organic-Inorganic Composites, Beijing University of Chemical Technology, Beijing 100029, China

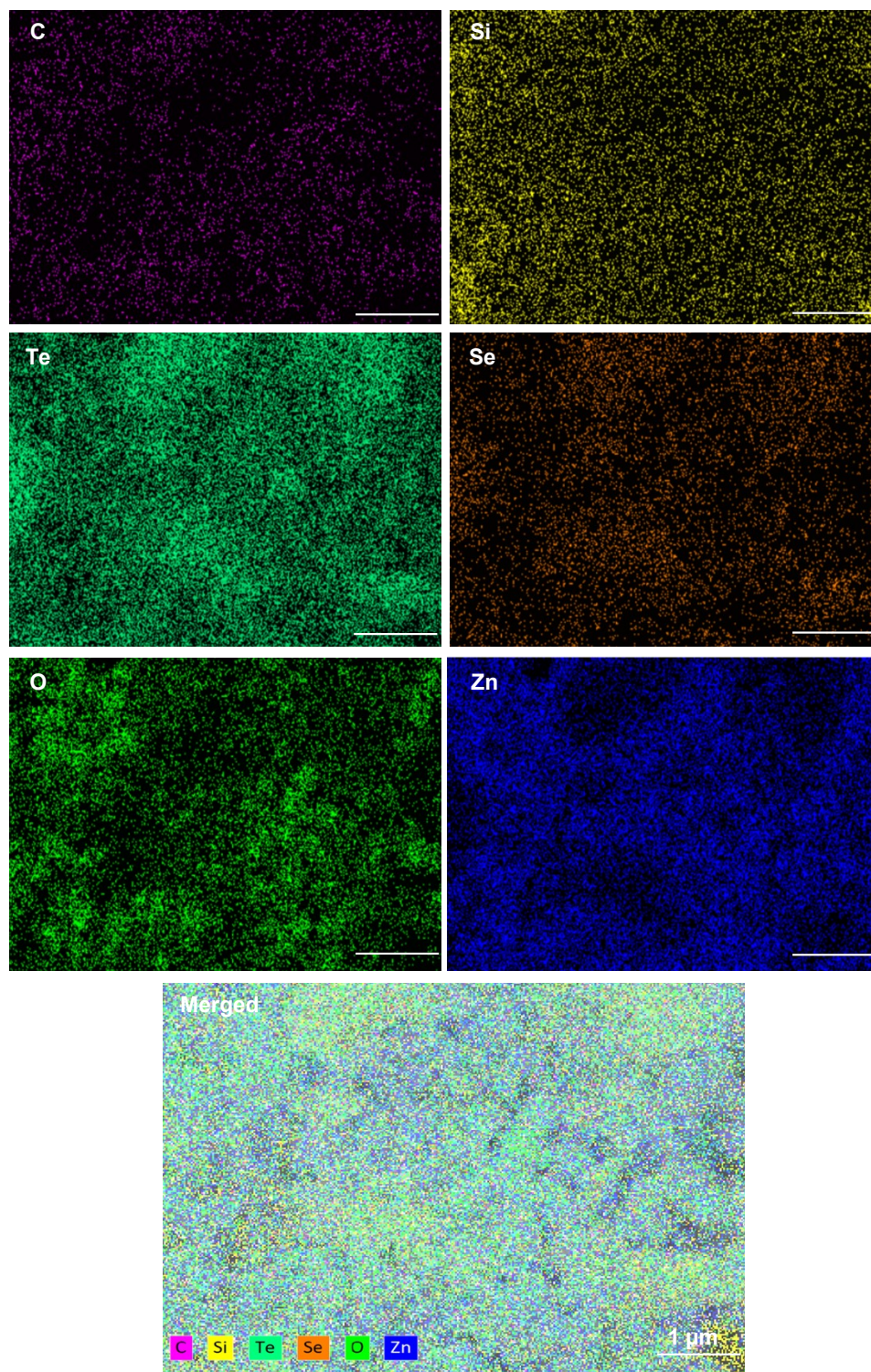


Figure S1. EDS elemental mapping of SeTe-ZnO NP.

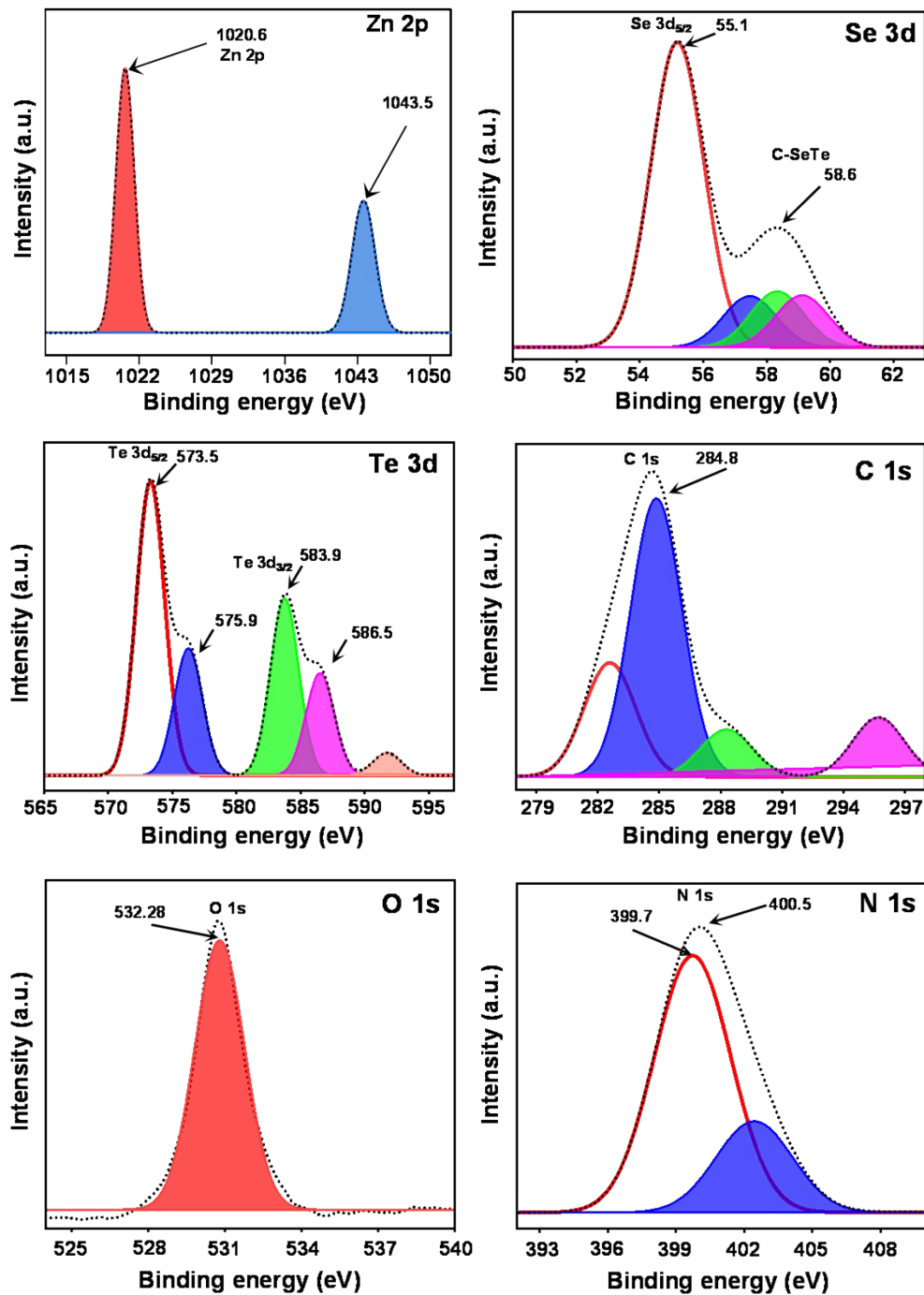


Figure S2. XPS high resolution elemental spectra of Zn2p, Se3d, Te3d, C1s, O1s and N1s of SeTe-ZnO NP.

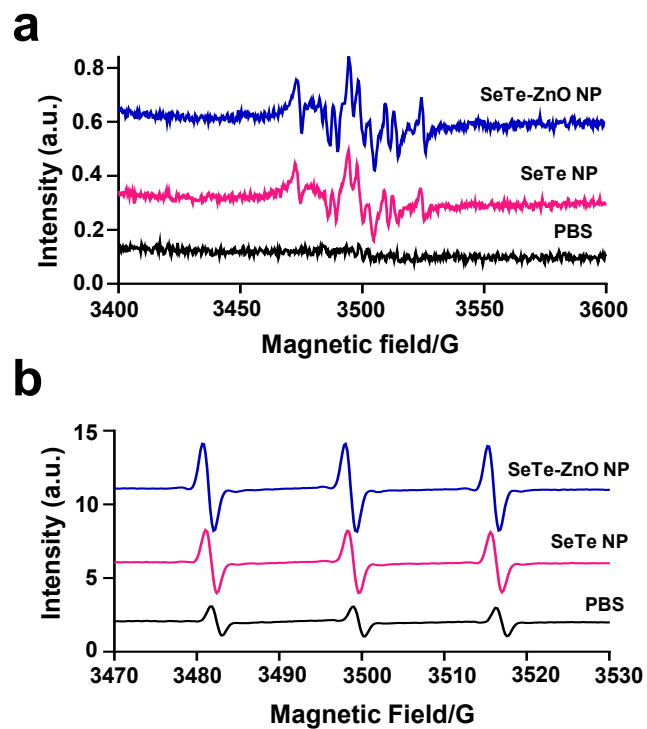


Figure S3. EPR results of PBS, SeTe NP and SeTe-ZnO NPs without 808 nm laser irradiation. (a) Hydroxyl radical generation. (b) Singlet oxygen generation.

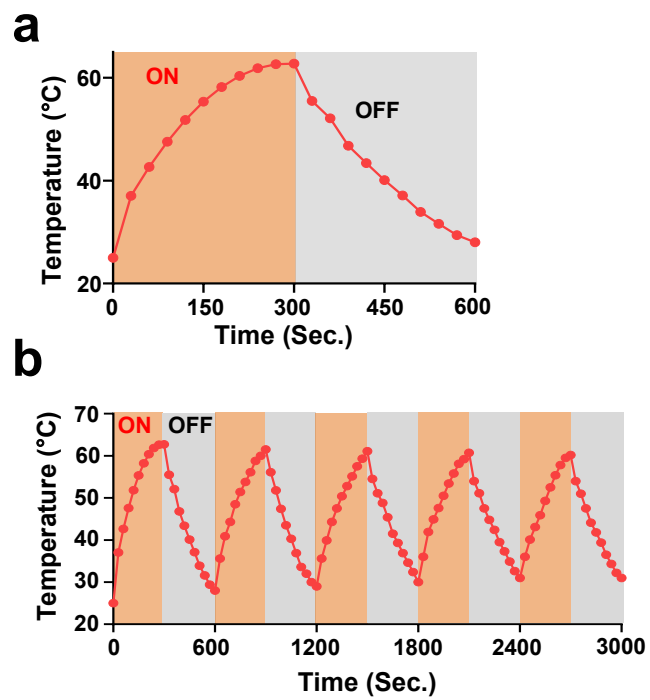


Figure S4. Photothermal performance of SeTe-ZnO NP. (a) Single heating and cooling curve of SeTe-ZnO NP with five minutes laser on and then off. (b) Five consecutive cycles of heating and cooling of SeTe-ZnO NP.

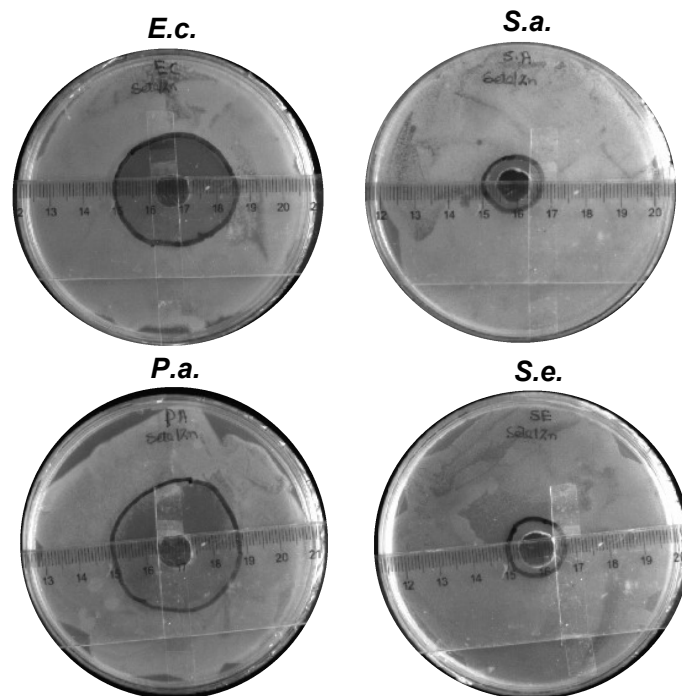


Figure S5. Representative pictures of zones of inhibitions of SeTe-ZnO NP against *E. coli*, *S. aureus*, *P. aeruginosa* and *S. epidermidis*.

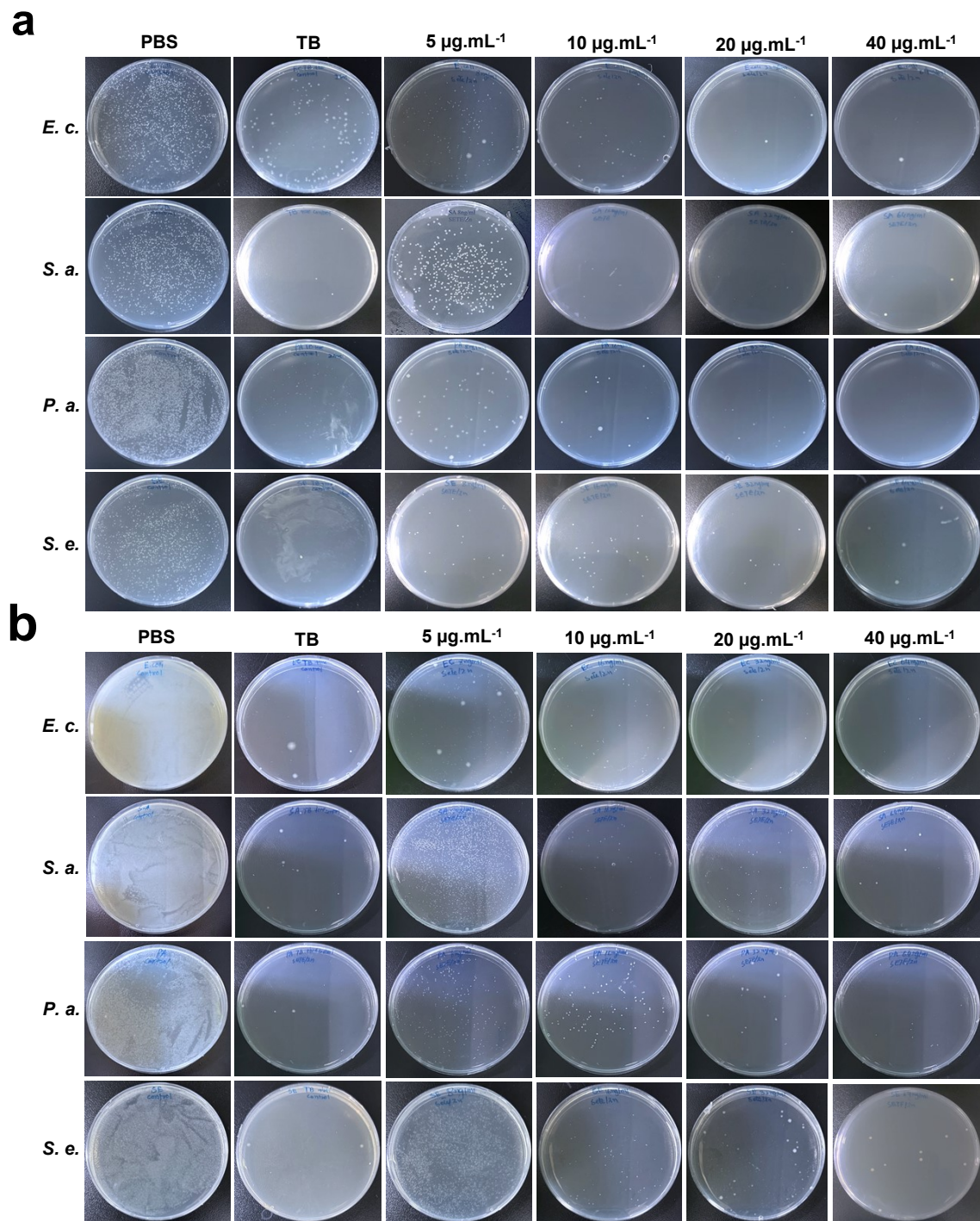


Figure S6. Antibacterial activity of SeTe-ZnO NP using agar plate method. (a) with 808 nm laser irradiation. (b) without 808 nm laser irradiation. TB: tobramycin.

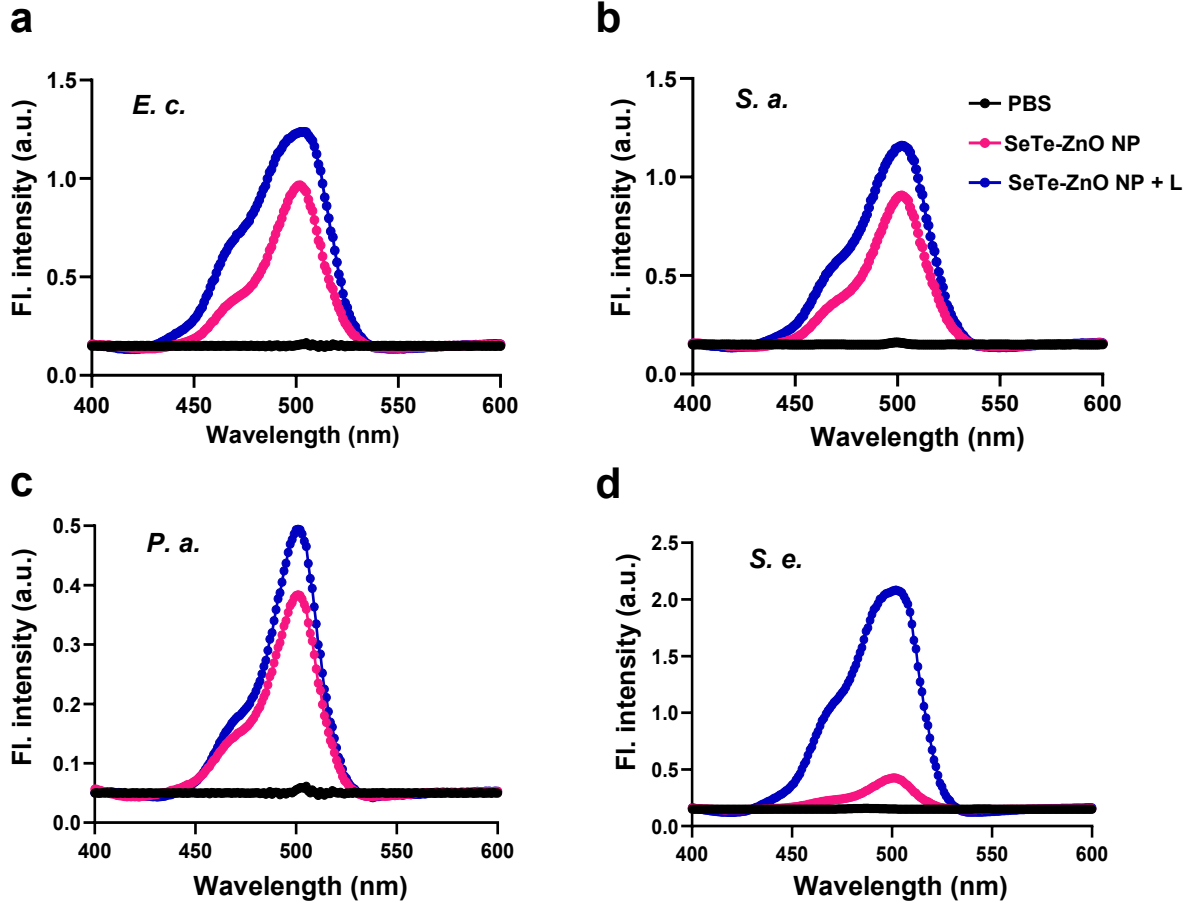


Figure S7. Intracellular ROS generation fluorescence (FI.) intensity of (a) *E. coli*, (b) *S. aureus*, (c) *P. aeruginosa* and (d) *S. epidermidis* after treatment with PBS, SeTe-ZnO NP and SeTe-ZnO NP + L.

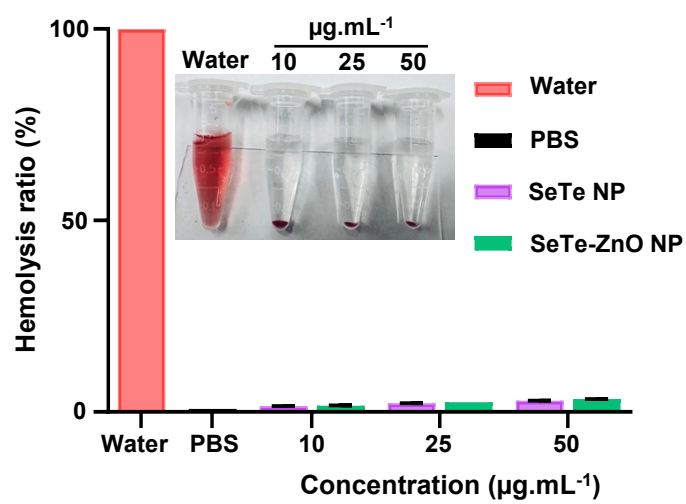


Figure S8. Representative images and quantitative hemolytic activity of mice red blood cells after treatment with water, PBS, and different concentrations of SeTe NP and SeTe-ZnO NP.

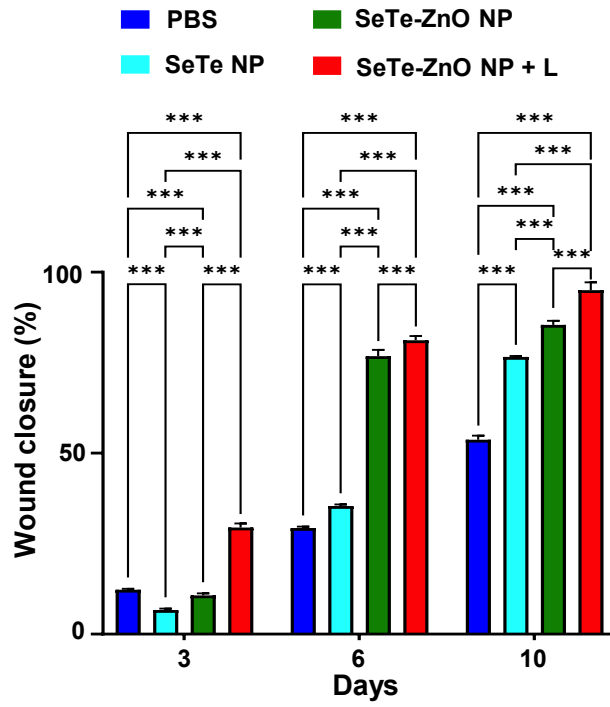


Figure S9. Percent wound closure on different days after treatment with PBS, SeTe NP, SeTe-ZnO NP and SeTe-ZnO NP + L.

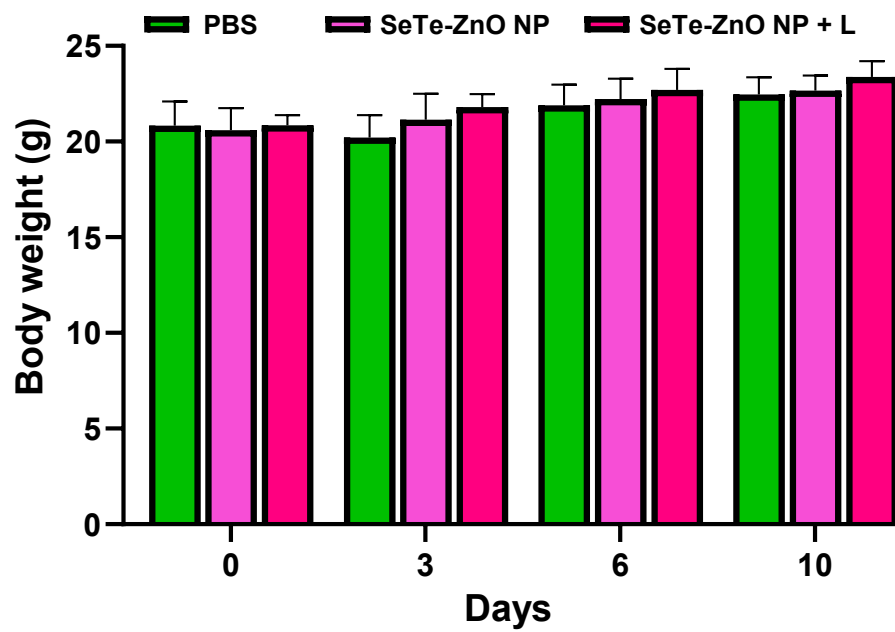


Figure S10. Body weight of mice on different days after treatment with PBS, SeTe-ZnO NP and SeTe-ZnO NP + L.

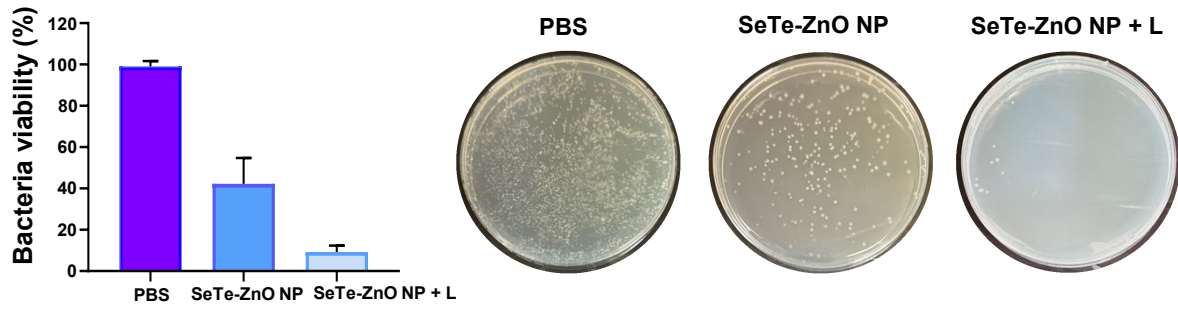


Figure S11. Quantitative results and representative pictures of bacteria from wound tissues treated with PBS, SeTe-ZnO NP and SeTe-ZnO NP + L.