## **Supplementary Material**

Anni Cui<sup>a</sup>, Ying Bao<sup>b</sup>, Haitao Xu<sup>c</sup>, Xin Mu<sup>a</sup>, Xiahua Zhong<sup>a</sup>, Wynn Wee<sup>b</sup>, Fanqi Wu<sup>d</sup>, Guiye Shan<sup>\* a</sup>

a. Centre for Advanced Optoelectronic Functional Materials Research, Key Laboratory for UV

Light-Emitting Materials and Technology of the Ministry of Education, Northeast Normal

University, Changchun, 130024, China

b. Department of Chemistry, Western Washington University, Bellingham, WA 98225 (USA)

c. Department of Ophthalmology, the Second Hospital of Jilin University, Changchun 130041,

China

d. Department of General Science: Chemical Biology, Thompson Rivers University, Kamloops, BC

V2C 0C8 (CA)

\* Corresponding author.

E-mail addresses: shangy229@nenu.edu.cn (Guiye Shan)



Fig. S1. (A) Size distribution and (B) $\zeta$  potential of PDA, PDA-MnO<sub>2</sub>, Ce6/liposome, and PMCL.



Fig. S2. ESR spectra of different groups with DMPO as •OH trapping agent (PMCL +

 $TMB + H_2O_2 + Laser, PMCL + TMB + H_2O_2, TMB + H_2O_2 \text{ and } H_2O_2).$ 



Fig. S3. Growth curve of E. coli (A) and S. aureus (B) treated with PMCL with or without laser irradiation.