## Supporting Information

## Light-Induced Caspase-3 Responsive Chimeric Peptide for Effective PDT/Chemo Combination Therapy with Well Compatibility

Yong-Li Mu,<sup>1#</sup> Jin Zhang, <sup>2#</sup> Meng-Qing Xu,<sup>1</sup> Mohamed F. Foda,<sup>1,2,3</sup> Yang Wu, <sup>2</sup> He-You Han<sup>1,2\*</sup>

<sup>1</sup> State Key Laboratory of Agricultural Microbiology, College of Science, Huazhong Agricultural University, Wuhan 430070, China

<sup>2</sup> State Key Laboratory of Agricultural Microbiology, College of Life Science and Technology, Huazhong Agricultural University, Wuhan 430070, China

<sup>3</sup> Department of Biochemistry, Faculty of Agriculture, Benha University, Moshtohor, Toukh 13736, Egypt

\*Email: hyhan@mail.hzau.edu.cn



Scheme S1. synthesis process of phDD using solid-phase peptide synthesis procedure (SPPS) method.



Figure S1. The ESI-MS result of product 1 in scheme S1.



Figure S2. The ESI-MS result of product 2 in scheme S1.



Figure S3. The ESI-MS result of product 3 in scheme S1.



Figure S4. The HPLC result of phDD.



Figure S5. The fluorescence spectrum of phD and phDD ( $E_x$ =405nm;  $E_m$ =600-750nm).



Figure S6. The CLSM result of (a) phDD-L (b) phED+L groups.



Figure S7. The tumors' photograph treated with various samples (PBS, phDD-L, phED+L, DOX, phDD+L).



Figure S8. The H&E staining of different organs treated with phDD-L and phED+L groups.