

## Supporting Information

### Sequentially Triggered Delivery System of Black Phosphorus Quantum Dots with Surface Charge Switching Ability for Precise Tumor Radiosensitization

Leung Chan<sup>1</sup>, Pan Gao<sup>1</sup>, Wenhua Zhou<sup>2</sup>, Chaoming Mei<sup>1</sup>, Yanyu Huang<sup>1</sup>, Xue-Feng Yu<sup>2,\*</sup>, Paul K. Chu<sup>3</sup>, Tianfeng Chen<sup>1,\*</sup>

<sup>1</sup> Department of Chemistry, Jinan University, Guangzhou, 510632, P. R. China

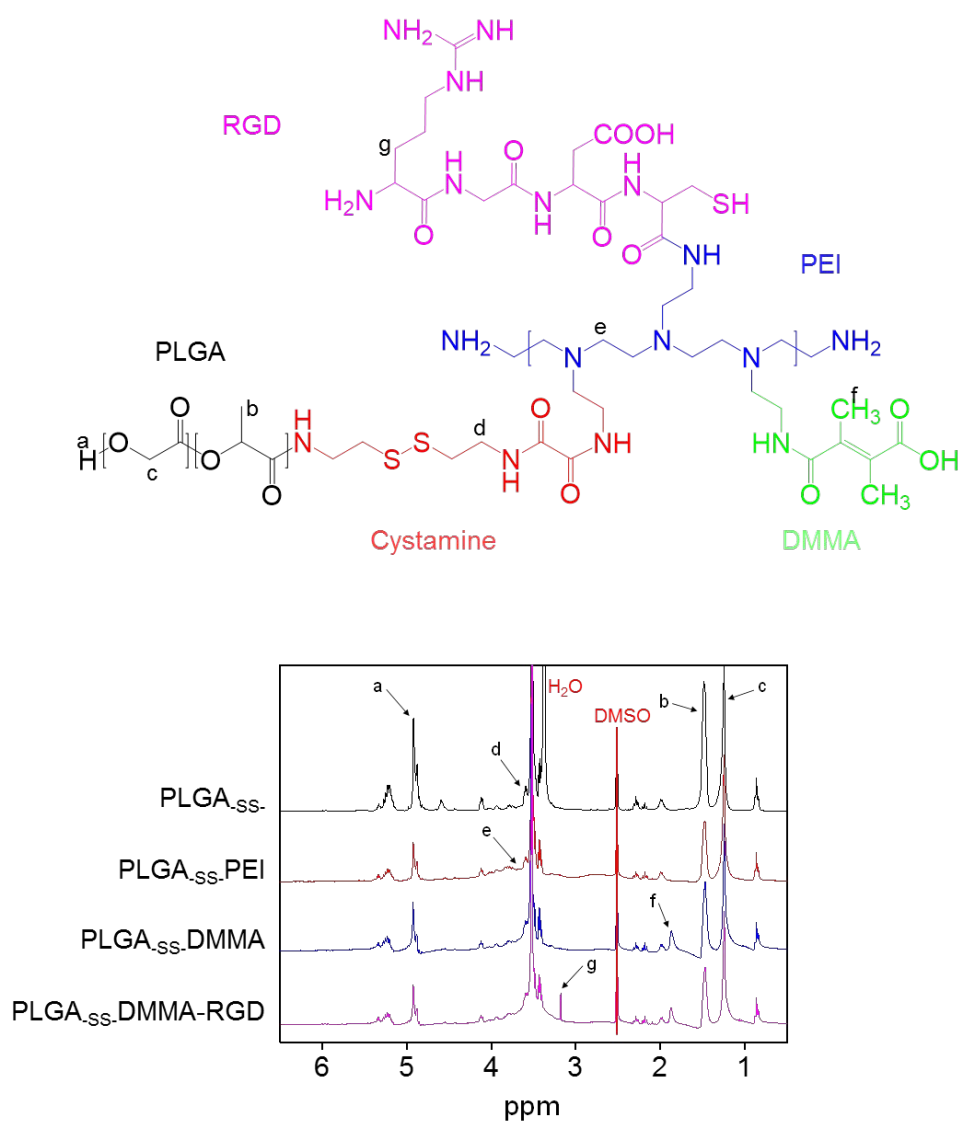
<sup>2</sup> Center for Biomedical Materials and Interfaces, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen 518055, P. R. China

<sup>3</sup> Department of Physics and Department of Materials Science and Engineering, City University of Hong Kong, Tat Chee Avenue, Kowloon, Hong Kong, China

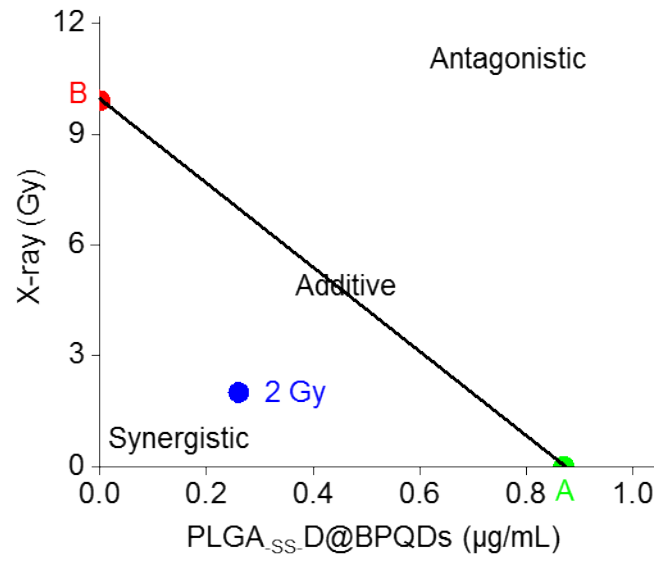
\*To whom correspondence should be addressed; Tel: +86 20-85225962.

\**Corresponding authors*: Tel: +86 20-85225962.

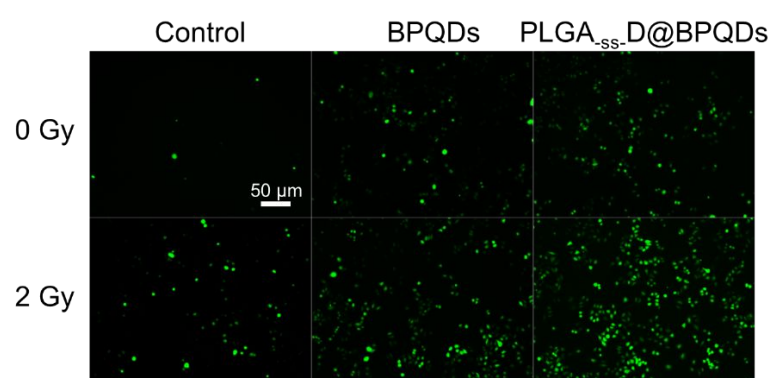
**E-mails:** tchentf@jnu.edu.cn (T. Chen); xf.yu@sia.ac.cn (X. F. Yu).



**Figure S1.**  $^1\text{H}$ -NMR of PLGA<sub>SS</sub>-DMMA.



**Figure S2.** Isobologram analysis of the synergistic antiproliferative effect of the combined application of X-ray and PLGA<sub>ss</sub>-D@BPQDs on A375 cells. The data points in the isobologram correspond to the growth inhibition ratio at 50% in the combined treatment.



**Figure S3.** ROS fluorescence images of A375 cells treated with BPQDs, PLGA<sub>ss</sub>-D@BPQDs, BPQDs + X-ray and PLGA<sub>ss</sub>-D@BPQD + X-ray at 30 min.