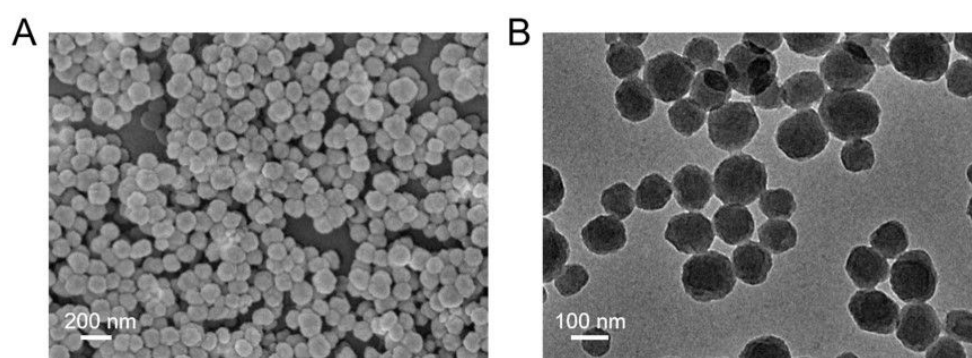


Supporting Information for

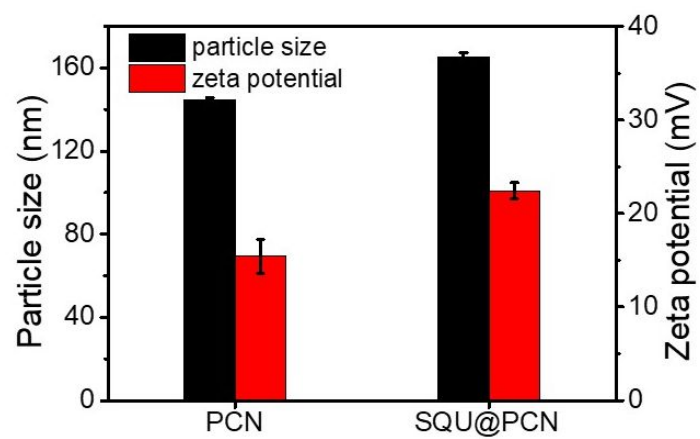
**An ATP-regulated Ion Transport Nanosystem for Homeostatic Perturbation Therapy and Sensitizing Photodynamic Therapy by Autophagy Inhibition of Tumor**

Shuang-Shuang Wan, Lu Zhang and Xian-Zheng Zhang\*

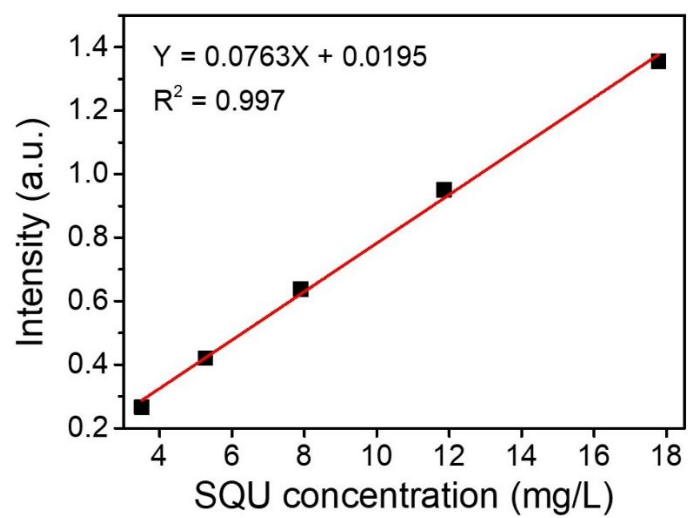
Key Laboratory of Biomedical Polymers of Ministry of Education & Department of Chemistry, Wuhan University, Wuhan 430072, P. R. China



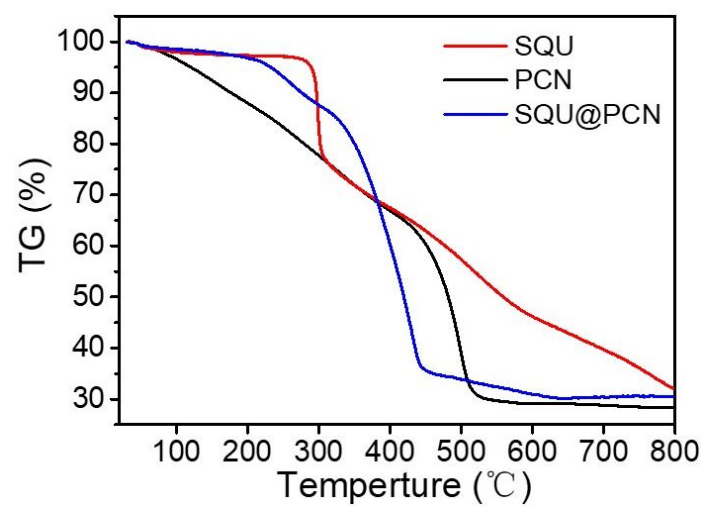
**Figure S1.** (A) SEM and (B) TEM image of PCN.



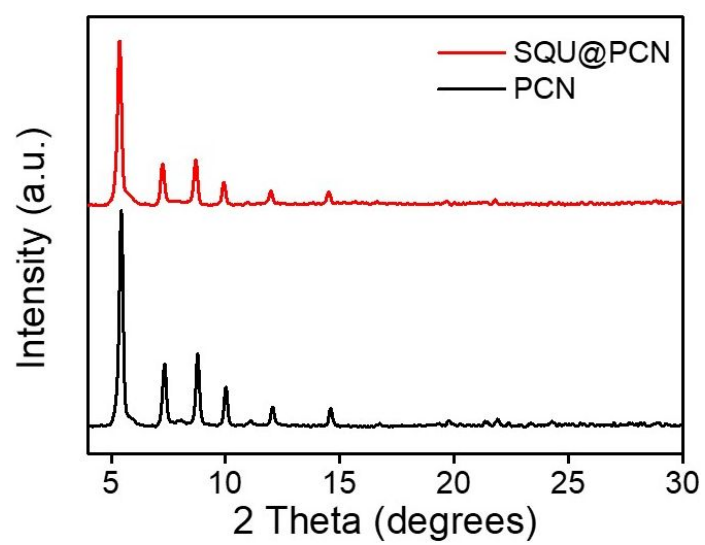
**Figure S2.** Hydrodynamic size and zeta potential of SQU@PCN and PCN.



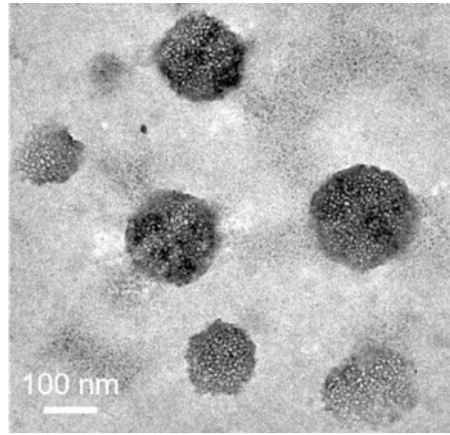
**Figure S3.** The standard curve of SQU by UV-vis absorption spectrometer.



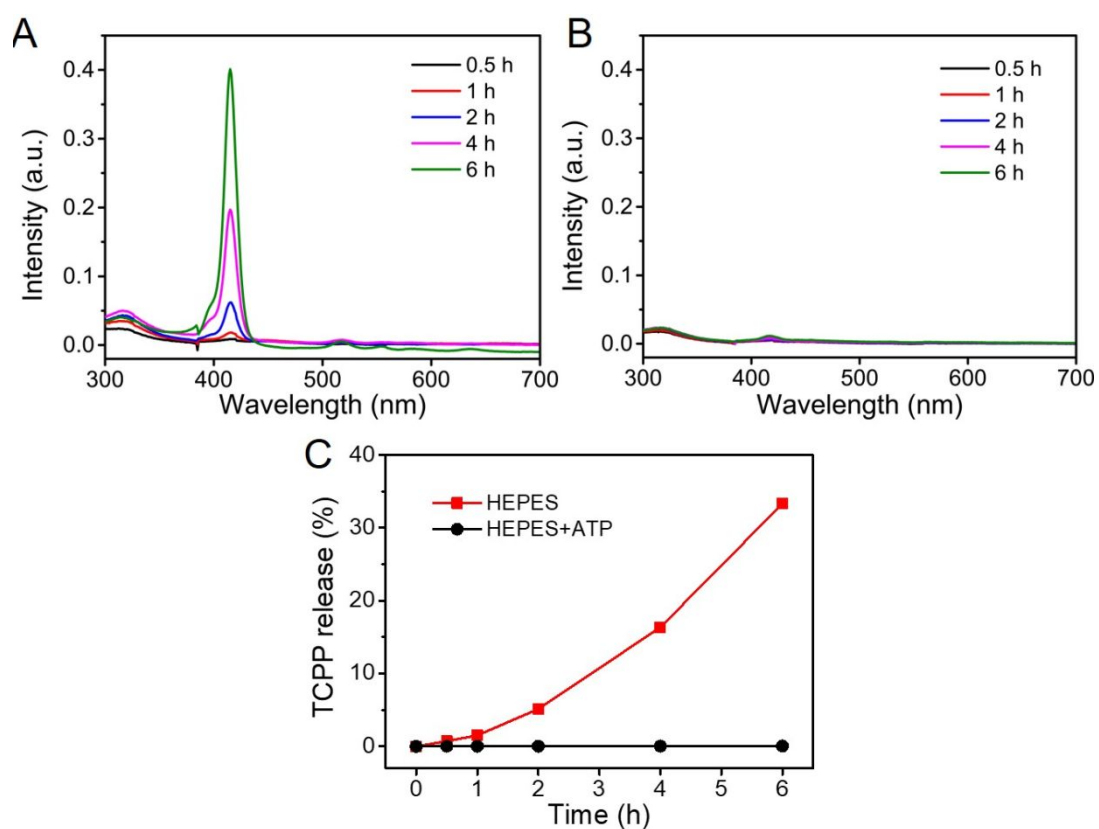
**Figure S4.** Thermogravimetric analysis of SQU@PCN, PCN and SQU.



**Figure S5.** PXRD patterns of SQU@PCN and PCN.

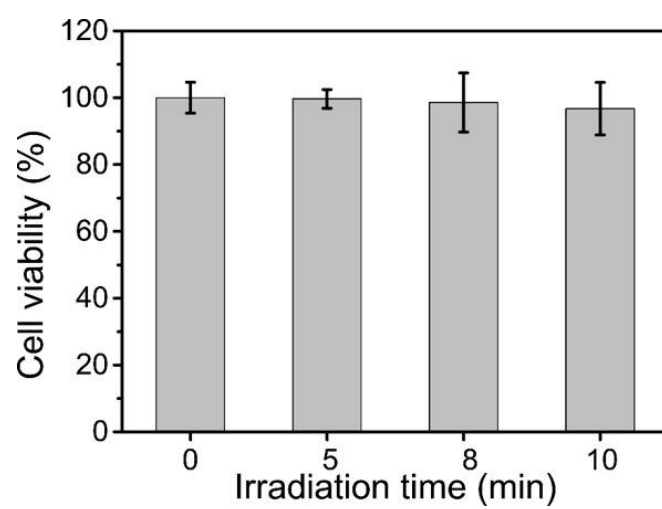


**Figure S6.** TEM image of SQU@PCN after soaking in ATP solution for 48 h.

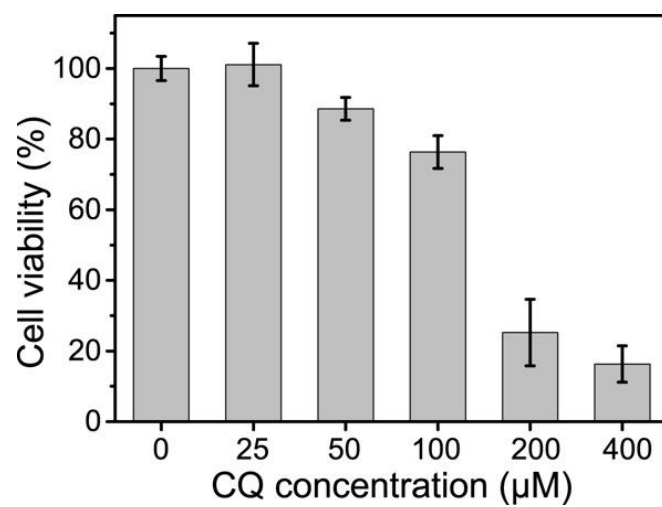


**Figure S7.** Fluorescence intensity change of TCPP in dialysate (A) with ATP and (B) without ATP. (C) Release percent of TCPP from SQU@PCN in different HEPES buffer solution.

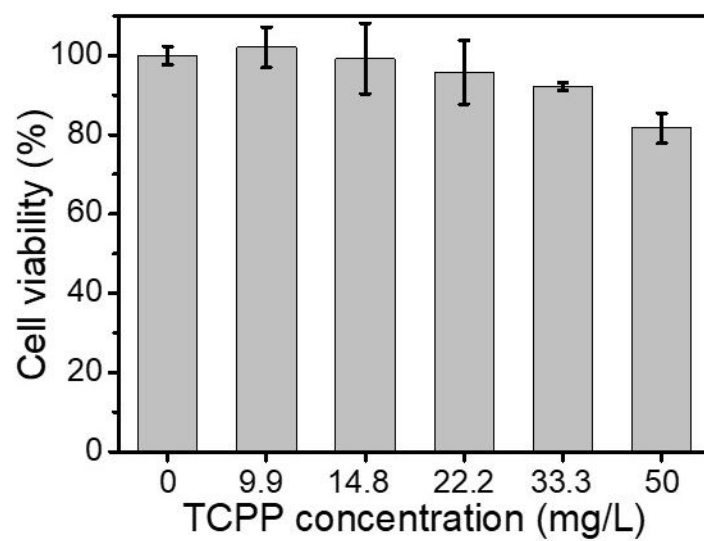




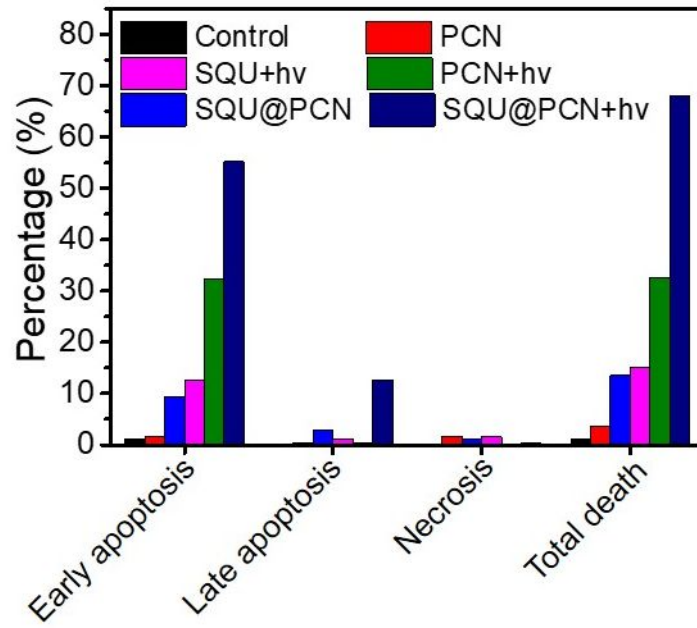
**Figure S8.** Cell viability of HeLa cells with different irradiation time. Cells were irradiated with 660 nm laser at 30 mW/cm<sup>2</sup>.



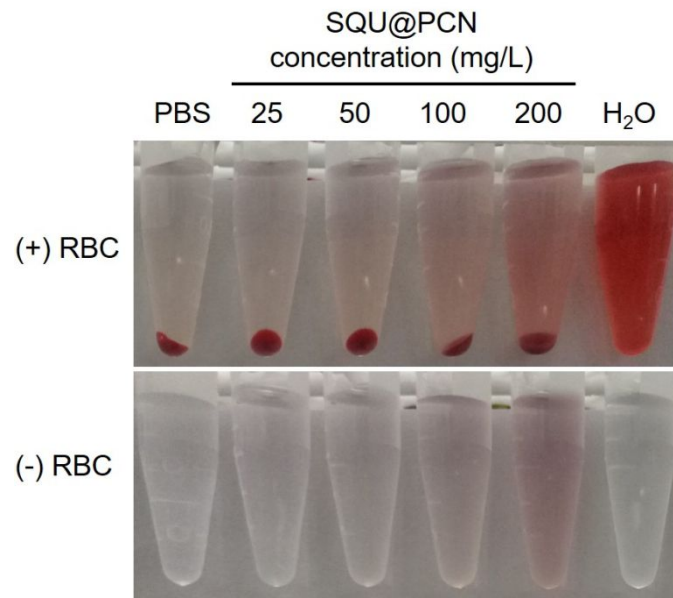
**Figure S9.** Cell viability of HeLa cells after treated with various concentrations of CQ.



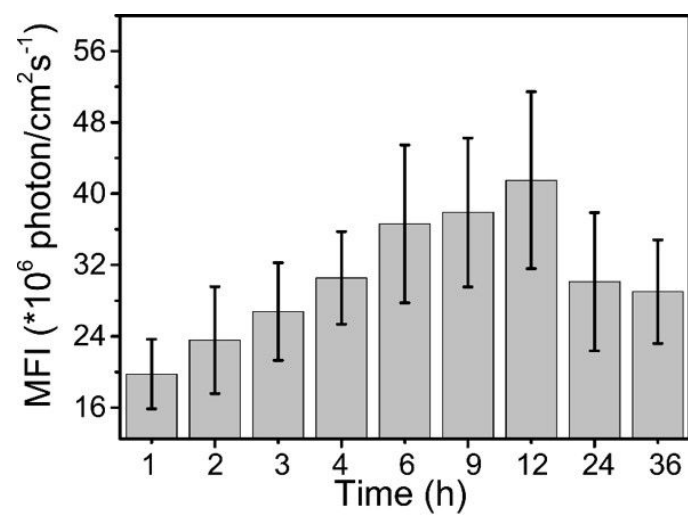
**Figure S10.** Cell viability of 3T3 cells after treated with SQU@PCN.



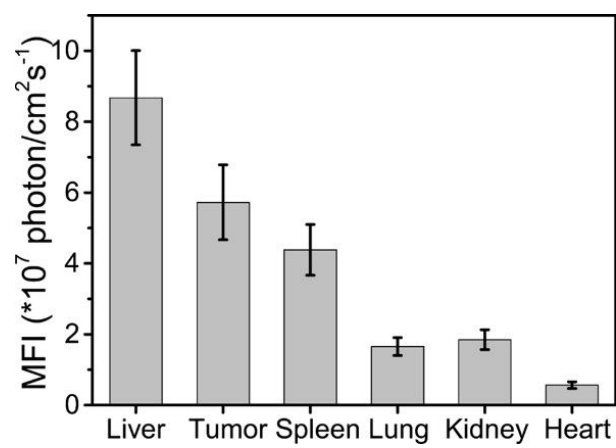
**Figure S11.** Statistical data of cell apoptosis assay by flow cytometry after various treatments.



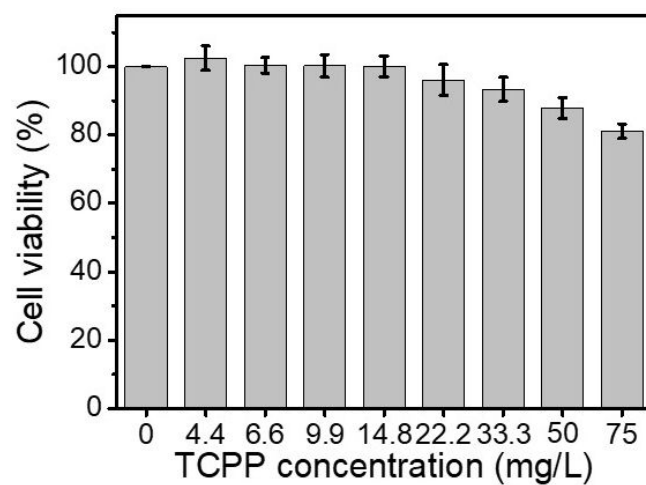
**Figure S12.** Hemolysis test at different treatment.



**Figure S13.** The MFI values of tumor region at different time after intravenous injection with SQU@PCN.



**Figure S14.** The MFI values of tissues *ex vivo* after 36 h post-injection.



**Figure S15.** Cell viability of SQU@PCN against NCTC cells.