Electronic supplementary information (ESI)

Facile Construction of Mitochondria-Targeting Nanoparticles for Enhanced Phototherapeutic Effects

Yi Liu,a,b Heping Li,a Jin Xie,b Mengxue Zhou,bc Hui Huang,bc Huiru Lu,b Zhifang Chai,b Jun Chen*b and Yi Hu*b

aKey Laboratory of Road Structure and Material of Ministry of Transport, Hunan Provincial Key Laboratory of Materials Protection for Electric Power and Transportation, Changsha University of Science and Technology, Changsha 410114, P.R. China

bCAS Key Laboratory for Biomedical Effects of Nanomaterials and Nanosafety, Multidisciplinary Research Division, Institute of High Energy Physics, Chinese Academy of Sciences (CAS), Beijing 100049, China

cUniversity of Chinese Academy of Sciences, Beijing 100049, China
Fig. S1 $^1$H NMR spectra of CBA in DMSO-d$_6$.

Fig. S2 Gel permeation chromatography (GPC) curve of rPAA. The instrument and column were from Waters company (Massachusetts, USA). The solvent is DMF, and the elution rate is 1 mL/min.
Fig. S3 (A) The thermal gravimetric analysis of SWCNTs, rPAA, rPAA@SWCNTs. (B) The standard curve of ICG.

Fig. S4 Hydrodynamic diameter of ICG/rPAA@SWCNTs in different solutions at 1 h (A), 24 h (B), and 7 days (C). (D) Hydrodynamic diameter of ICG/rPAA@SWCNTs in DMEM + FBS (10%) at different time.
Fig. S5 (A) Hydrodynamic diameter of rPAA@SWCNTs-Cy5 at different pH. (B) UV-vis absorption curve of rPAA@SWCNTs-Cy5 at different pH after 24-h incubation.
Fig. S6 Cellular localization of the nanoparticles under confocal imaging. HeLa cells were incubated with rPAA@SWCNTs-Cy5 (A) or ICG/rPAA@SWCNTs-Cy5 (B) for 0.5-12 h. Scale bar = 10 μm.
Fig. S7 Cellular localization of rPAA-Cy5 under confocal imaging. HeLa cells were incubated with rPAA-Cy5 for 0.5-12 h. Scale bar = 10 μm.
Fig. S8 (A) Confocal imaging of HeLa cells treated with amiloride, genistein, chlorpromazine, and nocodazole before incubating with rPAA@SWCNTs-Cy5 (50 μg/mL) or ICG/rPAA@SWCNTs-Cy5 (50 μg/mL). Scale bar = 10 μm. (B) Quantitative analysis of cellular fluorescence. * P < 0.05, ** P < 0.01, *** P < 0.001.
Fig. S9 (A) Mito-SOX imaging in HeLa cells treated with or without ICG/rPAA@SWCNTs. Scale bar = 10 μm. (B) Quantitative analysis of cellular fluorescence. ** $P < 0.01$, *** $P < 0.001$. 
Fig. S10 (A) Cell viability of SH-SY5Y cells after being incubated with various concentrations of ICG/rPAA@SWCNTs in dark or upon 808 nm laser. (B) Cell viability of SH-SY5Y cells with various concentrations of free ICG upon 808 nm laser.