

Graphene oxide and adenosine triphosphate as the source for producing carbon dots and their application for pH-triggered drug delivery and cell imaging

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Fig. S1 (A) Particle size distribution image (DSL) of N,P-CDs. (B) Particle size distribution image (DSL) of DOX/N,P-CDs. (C) Zeta potential of N,P-CDs. (D) Zeta potential of DOX. (E) Zeta potential of DOX/N,P-CDs. (F) Zeta potential of N,P-CDs prepared from ATP.

Fig. S2 (A) Fluorescence excitation and emission spectra of N,P-CDs. (B) Fluorescence intensity of N,P-CDs prepared from GO-ATP and ATP. (C) Normalized results of excitation-dependent emission shift of N,P-CDs.

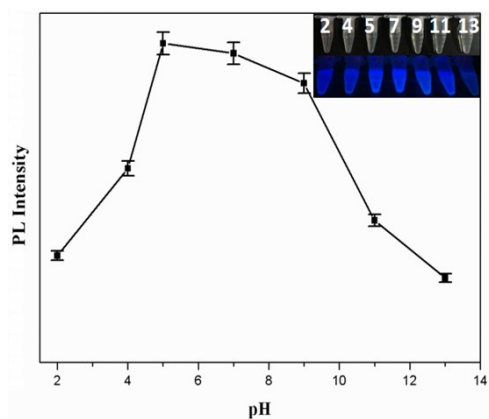


Fig. S3 Fluorescence intensity of N,P-CDs at different pHs (5 mM sodium phosphate, pH 2-13).

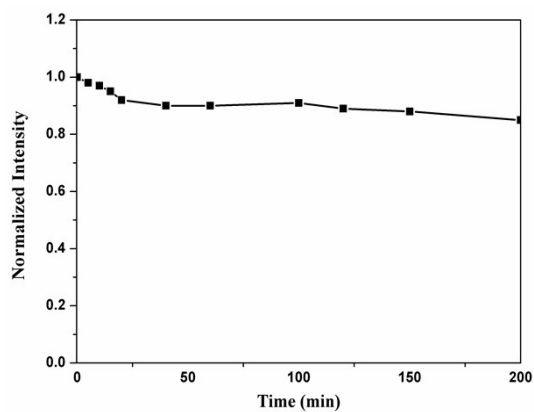


Fig. S4 Photoluminescence intensity of N,P-CDs after being exposed to the UV light for different time.

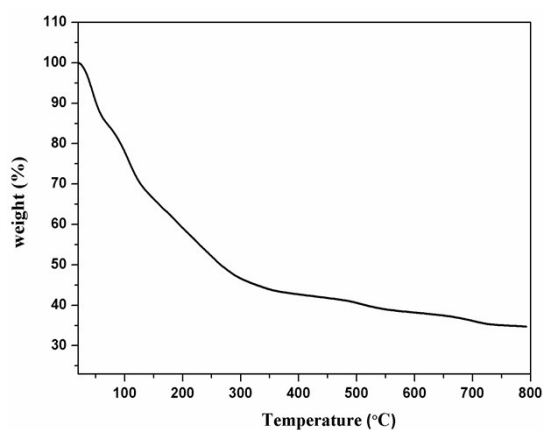


Fig. S5 Thermal gravity analysis of N,P-CDs.

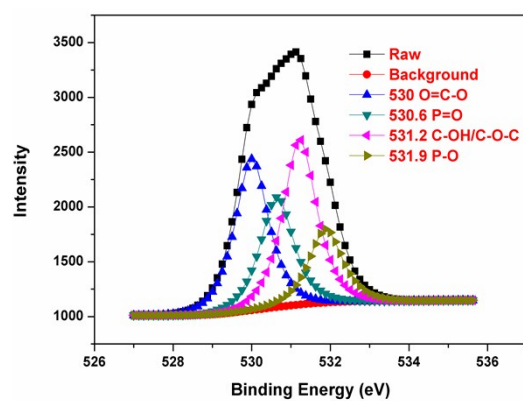


Fig. S6 O1s XPS spectra of N,P-CDs.

Fig. S7 The particle size of DOX/N,P-CDs at different temperatures and pH.

Fig. S8 (i) Morphology of HeLa cells after culture 24 h suspension at 10 µg/ml. (ii) HeLa cells stained with Hoechst 33342 after incubating in various media for 24 h.

Fig. S9 LSCM images of A549 cells incubated with N,P-CDs for 3 h observed under (A) bright field, (B) 488 nm, (C) their merged images, respectively. Scale bar = 20 µm. (E) N,P-CDs entered *S. aureus* and fluorescence images upon excitation with blue light (460–480 nm), (F) No fluorescent signal is detected in *S. aureus* in the absence of N,P-CDs. Scale bar = 50 µm.

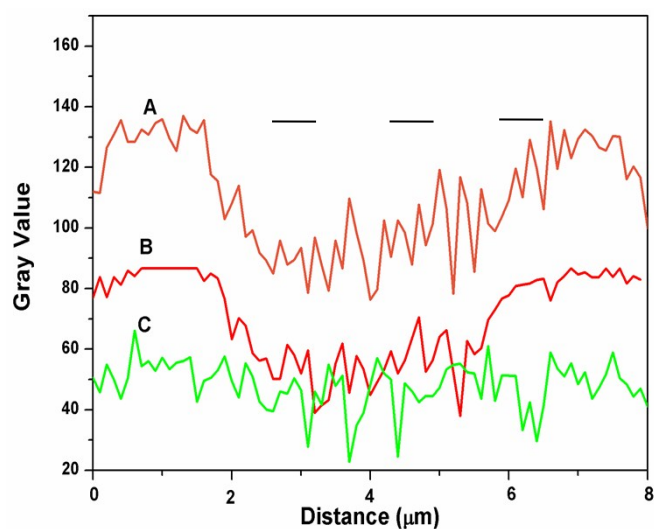


Fig. S10 Structure of the domain fluorescence intensity of A549 cells incubated with DOX/N,P-CDs for 3 h observed under 488 (C), 543 nm(B) and their merged images (A), respectively. The inset shows the LSCM images of A549 cells incubated with DOX/N,P-CDs for 3 h observed under 488, 543 nm and their merged images, respectively. Scale bar = 8 μm.