Electronic Supplementary Information

A versatile platform for the high-efficient preparation of graphene quantum dots: photoluminescence emission and hydrophilicity-hydrophobicity regulation and organelle imaging

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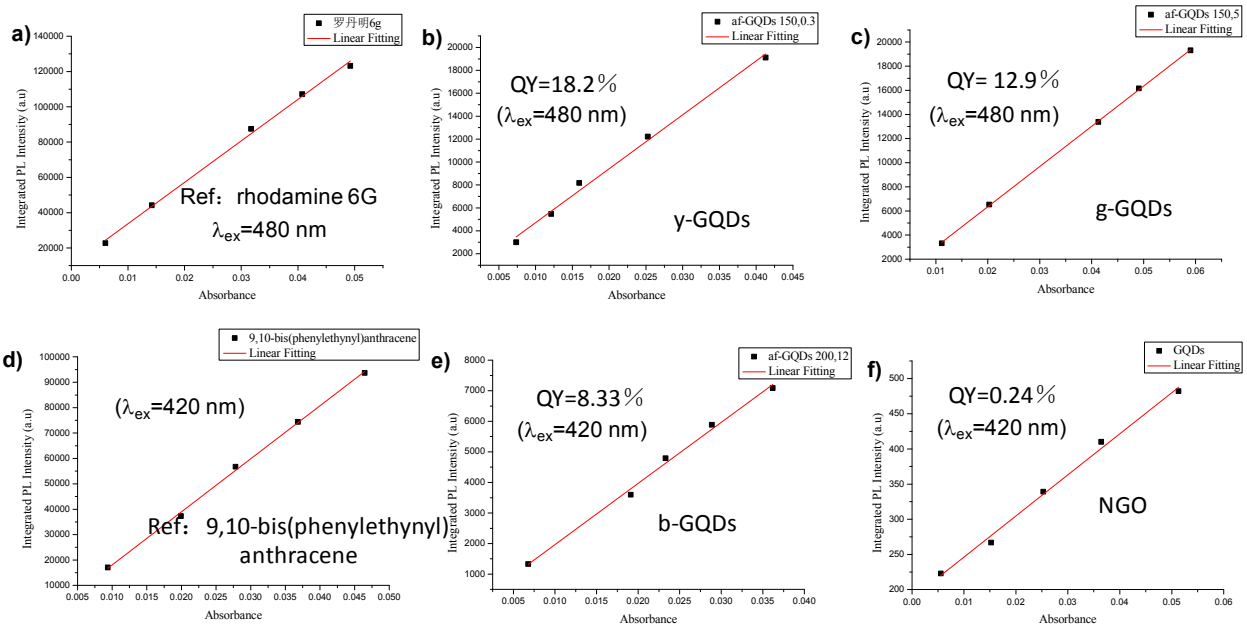

Fig. S1 a-c) PL quantum yields of the y-GQDs and g-GQDs were determined by referenced rhodamine 6G at excitation wavelength of 480 nm; d-f) PL quantum yields of the b-GQDs and NGO were determined by referenced 9,10-bis(phenylethynyl) anthracene at excitation wavelength of 420 nm.

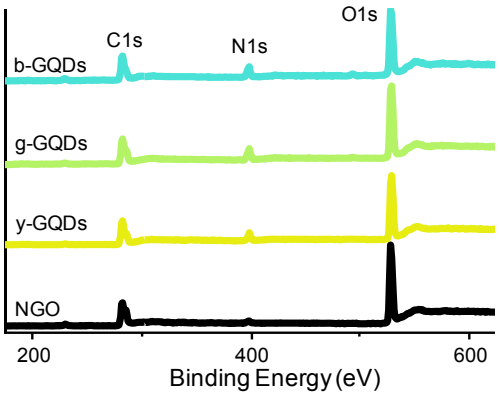

Fig. S2 XPS spectra of the NGO, b-GQDs, g-GQDs, and y-GQDs.

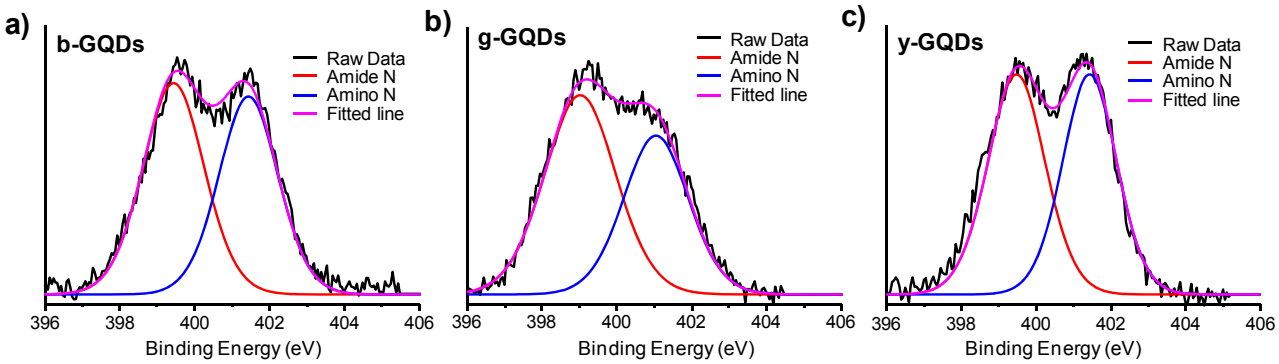

Fig. S3 High-Resolution N1s XPS spectra of *b*-GQDs (a), *g*-GQDs (b) and *y*-GQDs (c).

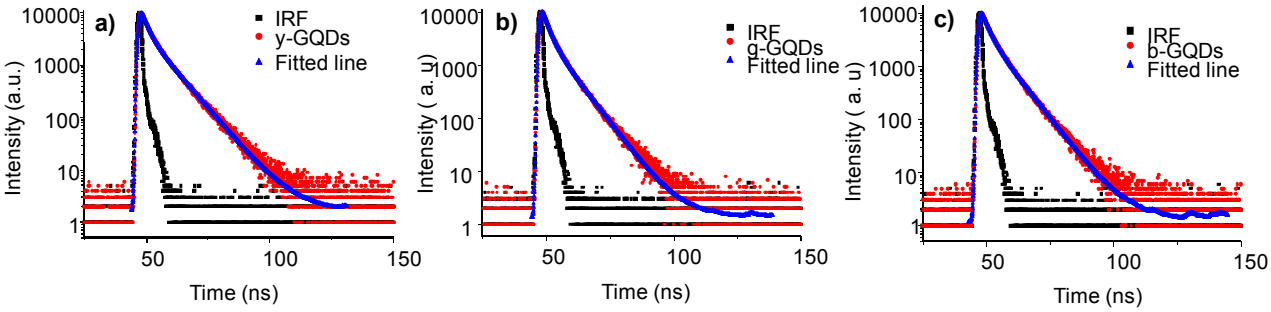

Fig. S4 PL decay profiles of y-GQDs (a), g-GQDs (b), and b-GQDs (c), respectively.

Table S1. PL lifetimes of the b-, g- and y-GQDs and relative contents of the two components by fitting the corresponding time-resolved spectra.

Sample	λ_{Em} (nm)	τ_1 (ns)	R_1 (%)	τ2 (ns)	R_2 (%)	$\tau_{average}$ (ns)
y-GQDs	554	2.2	37.4	8.0	62.6	4.0
g-GQDs	520	2.1	46.1	7.0	53.9	3.4
b-GQDs	495	2.3	39.0	7.2	61.0	3.9

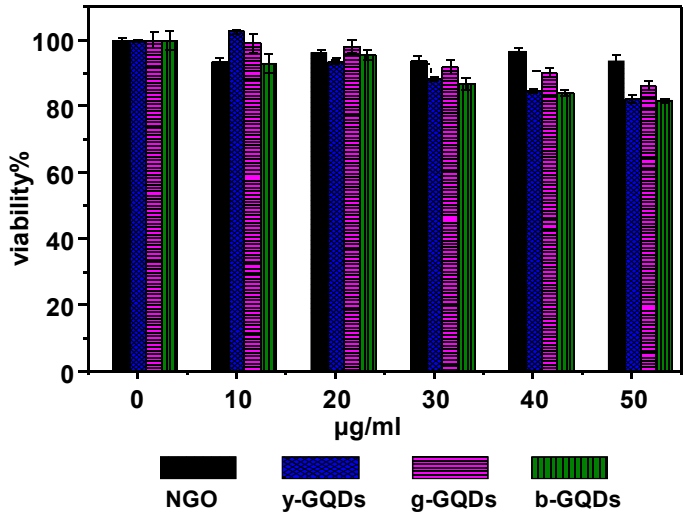

Fig. S5 Cellular cytotoxicity measurement of the NGO, y-GQDs, g-GQDs, and b-GQDs against MCF-7 by the MTT assay.

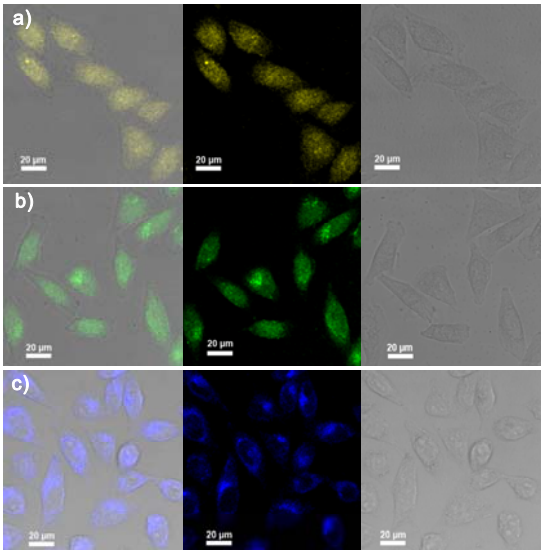

Fig. S6 Cell imaging property of the y-GQDs (a), g-GQDs (b), and b-GQDs (c) against MCF-7 under fluorescent field (middle), bright filed (right), and their merged images (left).

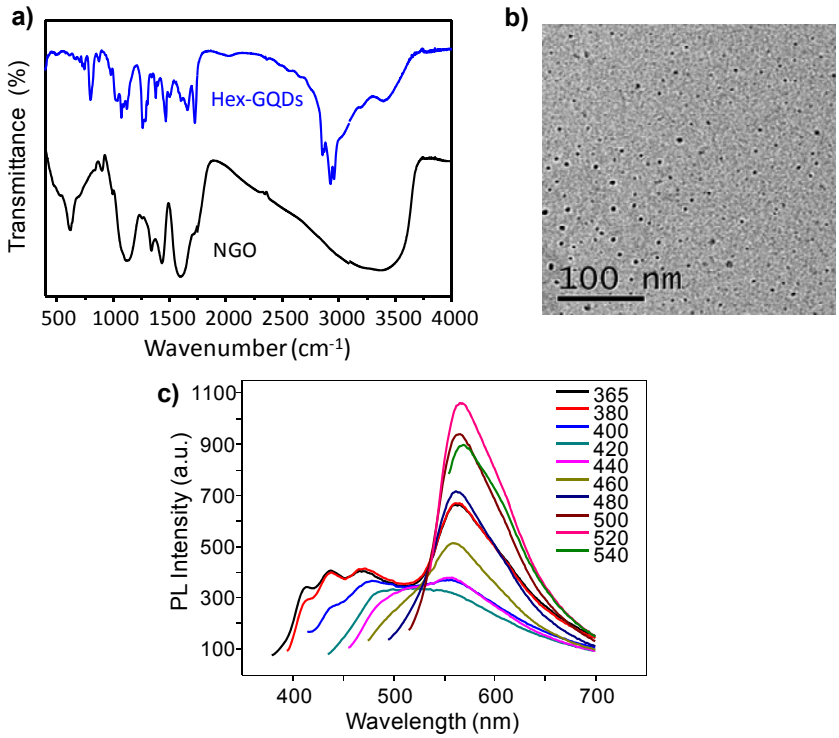

Fig. S7 FT-IR spectrum (a), TEM image (b), and PL emission (c) of the Hex-GQDs (in toluene) with different excitation wavelengths.

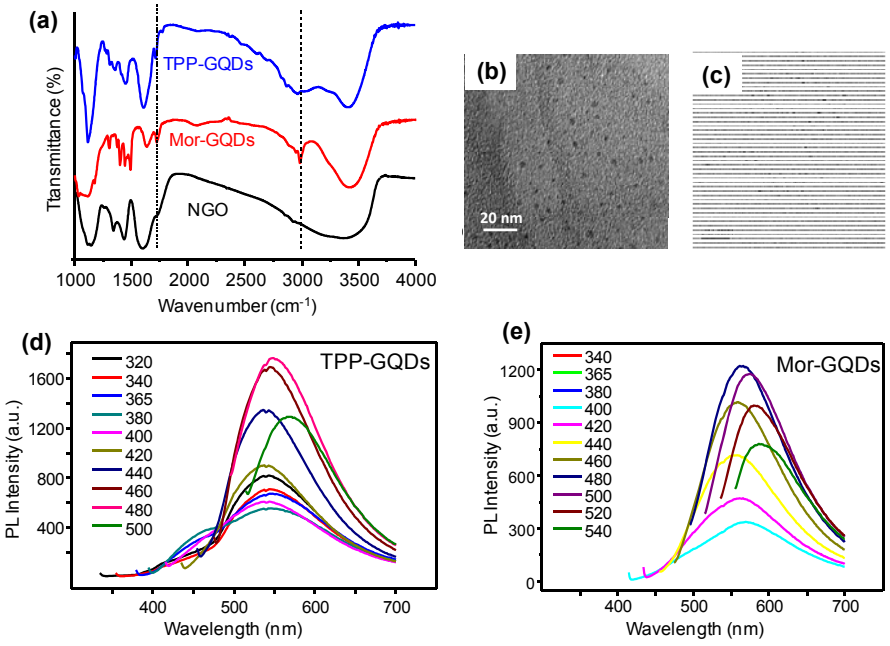

Fig. S8 FT-IR spectra of the NGO (black line), TPP-GQDs (blue line) and Mor-GQDs (red line) (a); TEM images of TPP-GQDs (b) and Mor-GQDs (c); Fluorescence emission spectra of the TPP-GQDs (d) and Mor-GQDs (e) under different excitation wavelengths.

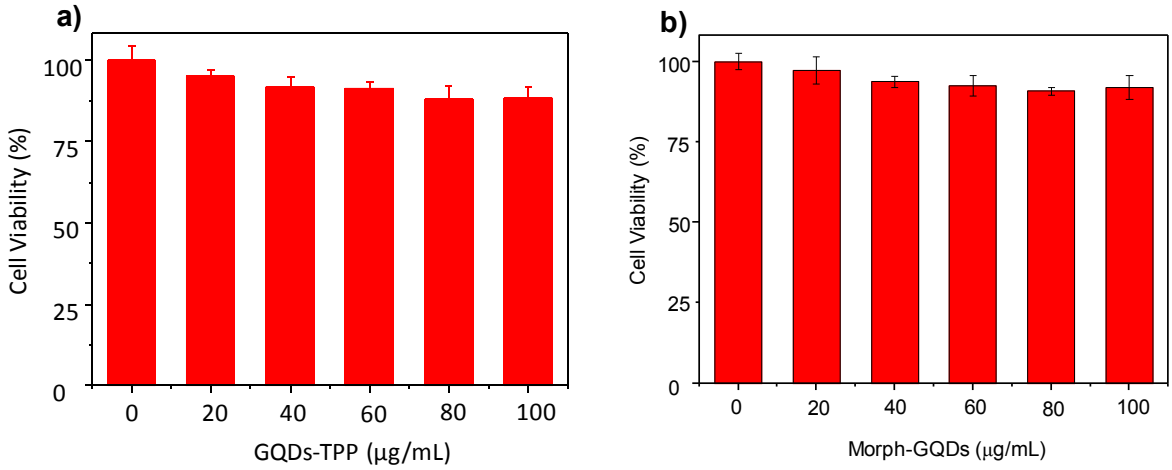

Fig. S9 Cellular cytotoxicity measurement of TPP-GQDs (**a**) and Mor-GQDs (**b**) (both from 20 to 100 μg/mL) through the standard MTT assay toward MCF-7 cells.

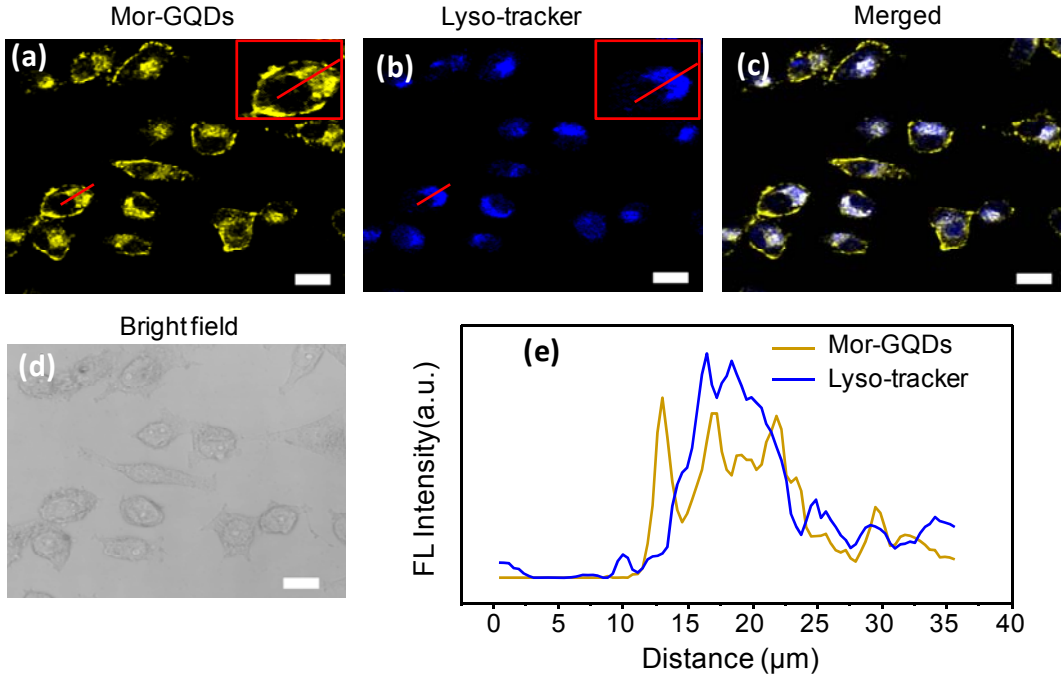

Fig. S10 Co-localization of Mor-GQDs and Lyso-tracker in MCF-7 cells. The fluorescence images were collected at 520−650 nm (a, for Mor-GQDs) and 430−500 nm (b, for Lyso-tracker), respectively, with excitation at 488 nm. (c) Merged images. (d) Bright filed image. (e) Fluorescence intensity profile of linear region of interest across a selected single cell. Scale bar: 20 μm.