Supporting Information

Graphene Quantum Dots in Photodynamic Therapy

Jiayi Chen[1], Wentian Wu[2], Fangwei Zhang[2], Jiali Zhang[2], Hui Liu[1], Jing Zheng[1], Shouwu Guo[2]* and Jingyan Zhang[1]*

[1] State Key Laboratory of Bioreactor Engineering, Shanghai Key Laboratory of New Drug Design, School of Pharmacy, East China University of Science and Technology, Shanghai, 200237, P.R. China

[2] Department of Electronic Engineering, School of Electronic Information and Electrical Engineering, Shanghai Jiao Tong University, Shanghai 200240, P.R. China

* Correspondence: zhengjing@ecust.edu.cn, and swguo@sjtu.edu.cn

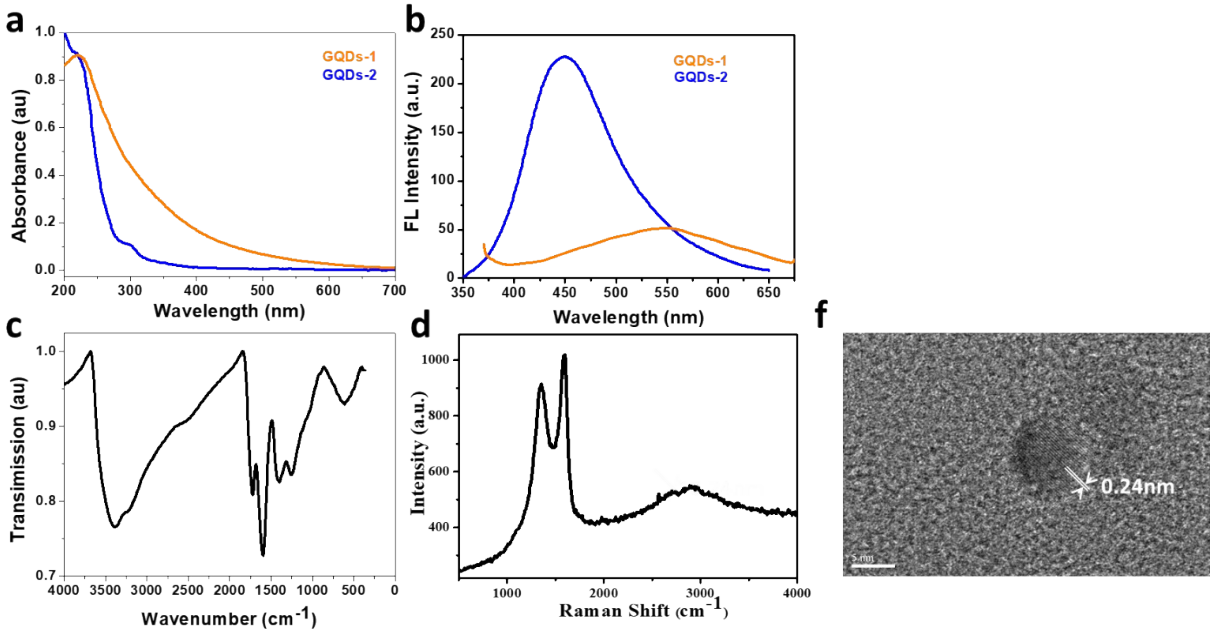

Figure S1. UV-vis (a), fluorescence (b), FT-IR (c), and Raman spectra (d) of the GQDs-1 and GQDs-2. f) high-resolution TEM image of the GQDs-1.

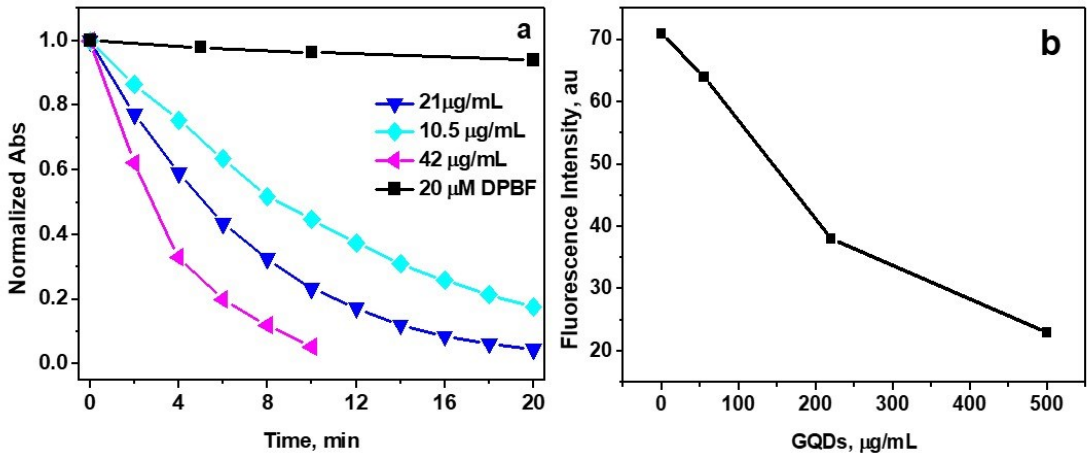

Figure S2. Comparison of the $^1O_2$ detection methods. a) DPBF method. Absorbances of the different concentrations of GQDs-1 with 20 μM DPBF solutions (DMF/H_2O, v/v=1) under irradiation of the halogen lamp with a 550 nm cutoff filter. b) SOSG method. Fluorescence intensities of the SOSG solution with different GQDs-1 after 10 min of the irradiation. Excitation 488 nm.

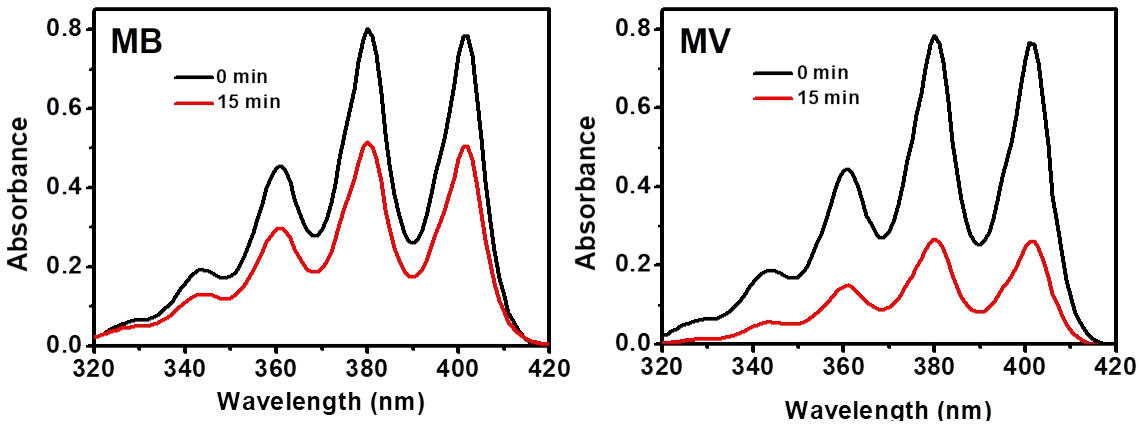

Figure S3. ADMA absorption changes in the presence of photosensitizers MB and MV under irradiation of a 660 nm laser for 15 min. MB was 0.5 μM, and MV was 2 μM.

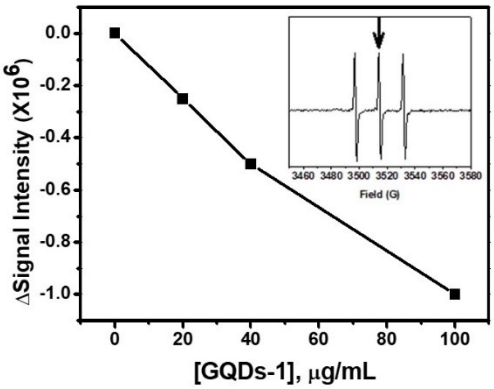

Figure S4. The change of EPR signal intensity of samples of the MB (0.1 mM)/TEMP in the presence of different concentrations of the GQDs-1. The samples were measured after the irradiation with a 660 nm laser for 15 min. Insert is the EPR spectrum of the starting sample, and arrow indicates the peak that intensity is measured.

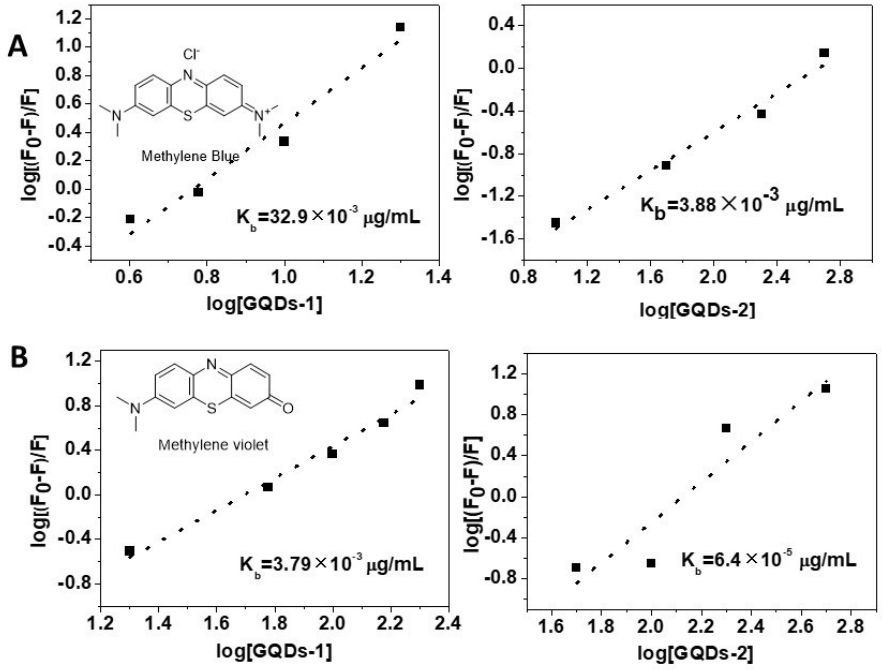

Figure S5. The change of fluorescence intensity of MB (A) and MV (B) with different concentrations of GQDs-1 and GQDs-2 in 10 mM PBS buffer (pH 7.4). The excitation wavelength was 650 nm (A) and 610 nm (B), respectively.

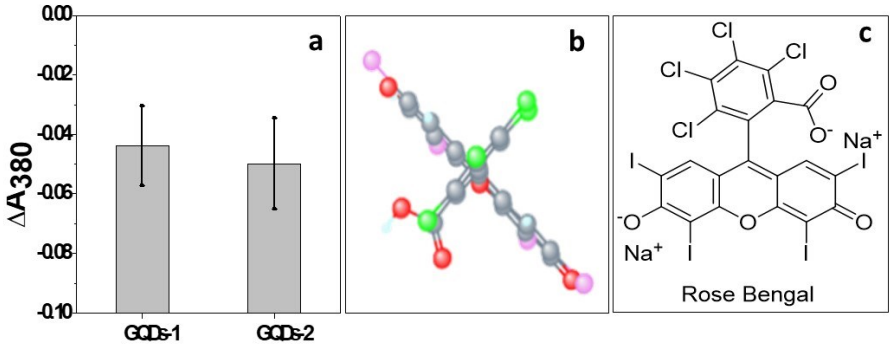

Figure S6. (a) Photoactivity change of rose bengal (2 μM) in the presence of GQDs-1 and GQDs-2 (50 μg/mL) under the irradiation of halogen light for 15 min. (b-c) Three dimensional and chemical structure of rose Bengal.