Electronic Supplementary Material (ESI) for Nanoscale.


Supplementary information

# Can Graphene Quantum Dots Cause DNA Damage in Cells?

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**Excitation wavelength dependent emission of GQDs.**

To obtain the excitation-emission map of GQDs, an aqueous dispersion of GQDs were excited measured with different light in the range of 250 nm to 550 nm and the emission spectrum at each excitation wavelength were measured respectively. The emission intensity at various emission wavelengths (x-axis) was then represented by the color scheme and shown as a function of excitation wavelength (y-axis).(Figure S1)

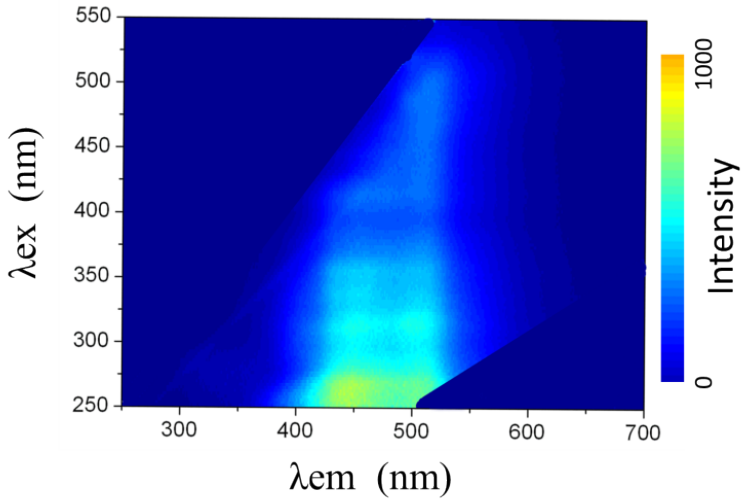


**Figure S1.** Fluorescence excitation-emission map of as-synthesized GQDs. Two trains of strong signals indicated by white lines are due to scattering of excitation light and its second order.

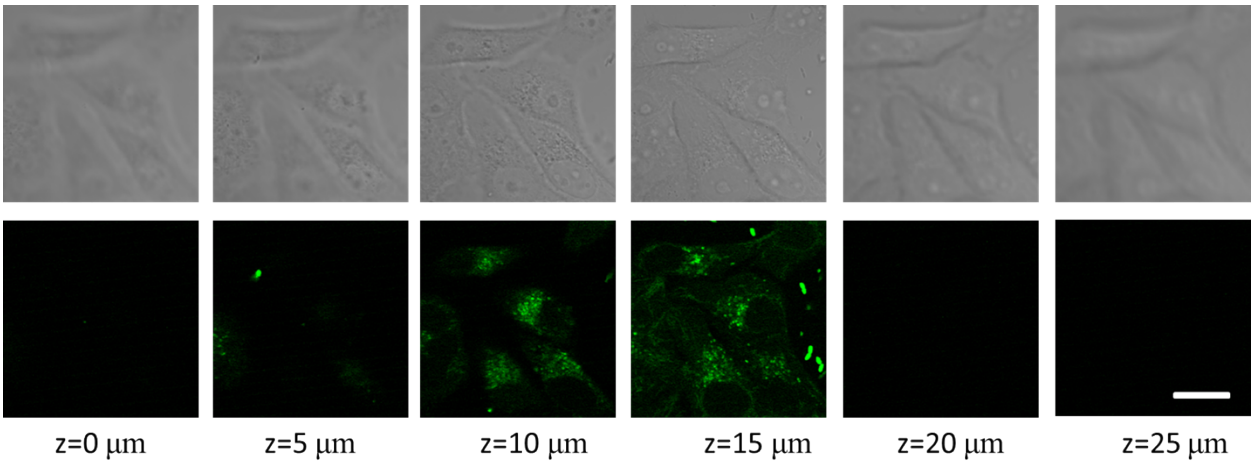


**Figure S2.** Confocal fluorescence images of cells treated with GQDs (50μg/mL, 6 h) by changing depth in the z axis. Confocal optical z sections in 1 μm intervals were taken through the whole

cells and typical images at z=0, 5, 10, 15, 20, 25 μm were presented. Upper row: bright-field images; bottom row: fluorescence images.

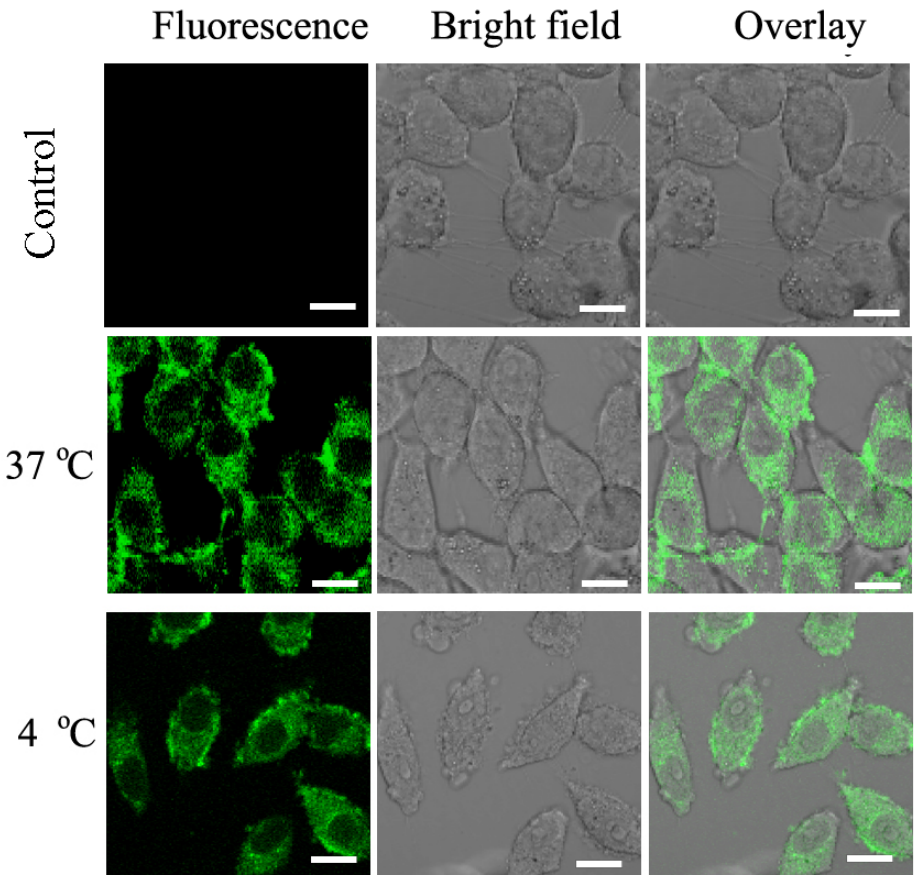


**Figure S3.** Fluorescence images of control cells and cells treated with GQDs for 6 h at 37 °C and 4 °C, respcetively. Scale bar: 20 μm.

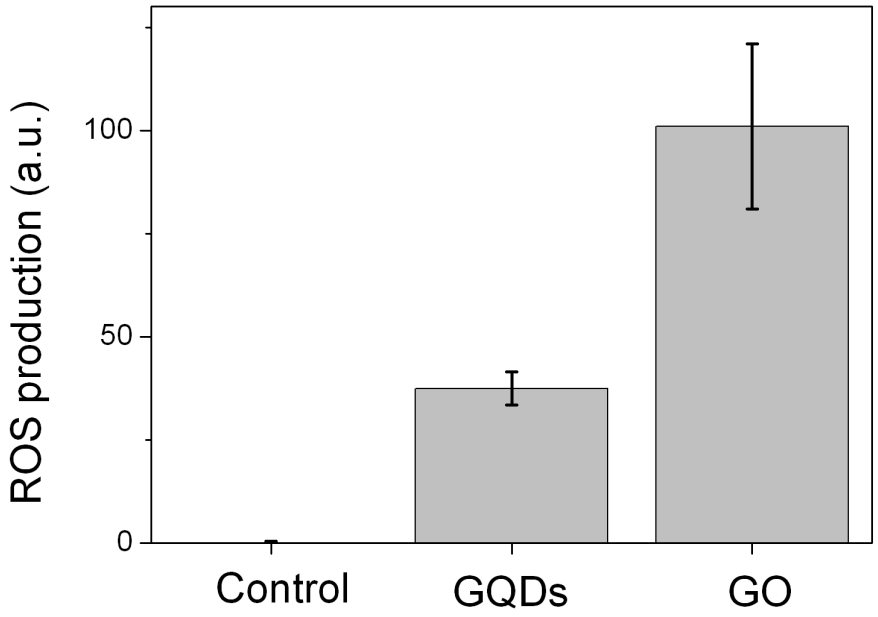


**Figure S4.** ROS generation in NIH-3T3 cells after incubation with GQDs and graphene oxides (GO) for 24 h. The data represent the average of six experiments with the standard deviation. Dose is 25 μg/mL for both GQDs and GO.