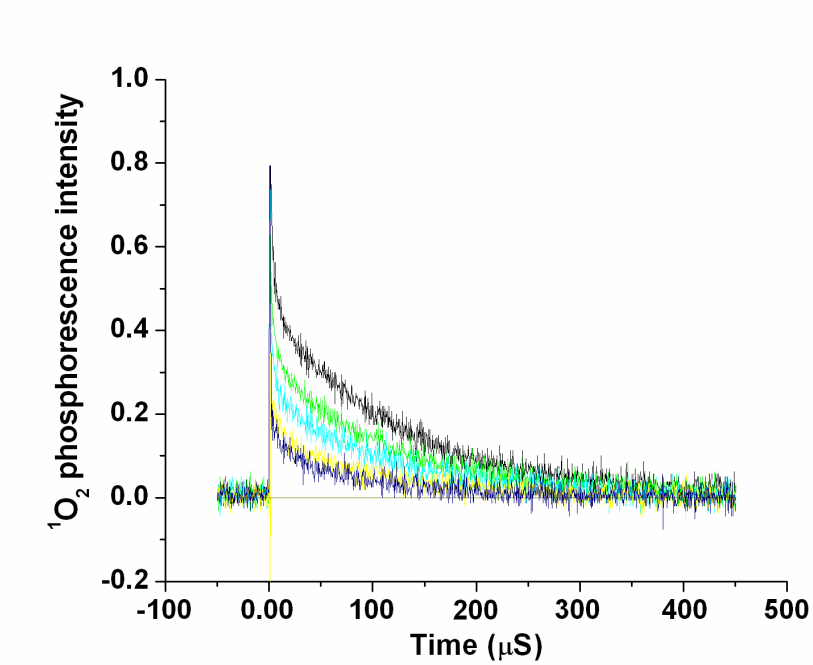
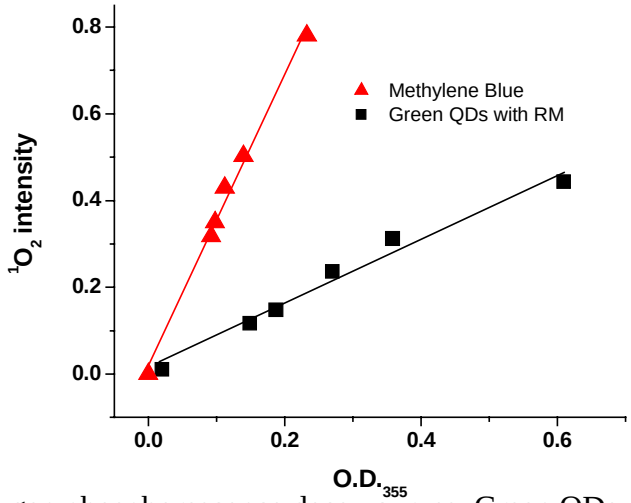
Supporting Information:

(a)



(b)



a). Singlet oxygen phosphorescence decay curves. Green QDs with RB in D_2O at 532 nm. Absorption of resulting solution decreased from 0.5554, 0.3291, 0.2613, 0.1872 and 0.1565 at 355 nm. (QY=0.14)

b). Relative intensity of singlet oxygen production versus optical density of QD-sensitizer, and MB(Q.Y. = 0.64) as reference, excitation at 355 nm

Calculation of QD:PS ratios

QD:PS ratios in QD-PS conjugates were calculated by measuring the UV/Vis absorbance of the QDs and PSs and using the Beer-Lambert law, $A = \varepsilon bc$, where A = absorbance, ε is the absorption coefficient, b is the path length (1 cm), and c is the concentration. The first exciton peak of QDs (538nm for green, 610nm for red) was used to determine the concentration of QDs[1] while the absorption peaks of the PSs at 565 nm for Rose Bengal and 660 nm for Chlorin e6 were used to determine the concentrations of the photosensitizers. For large QD:PS ratios (1:2 or higher), there was sufficiently low spectral overlap between the absorption peaks of QDs and PSs to calculate approximate QD:PS ratios. The absorption coefficients at 300 nm of both green and red QDs were calculated by comparing the absorption values of the QD exciton absorption peaks and their absorbance at 300 nm. These extrapolated absorption coefficients were used to calculate stoichiometries for smaller QD:PS ratios.

Reference

(1) Yu, W. W.; Qu, L. H.; Guo, W. Z.; Peng, X. G. *Chemistry of Materials* **2004**, *16*, 560.