SUPPORTING INFORMATION

Pdots Nanoparticles Load Photosensitizers and Enhance Efficiently their Photodynamic Effect by FRET

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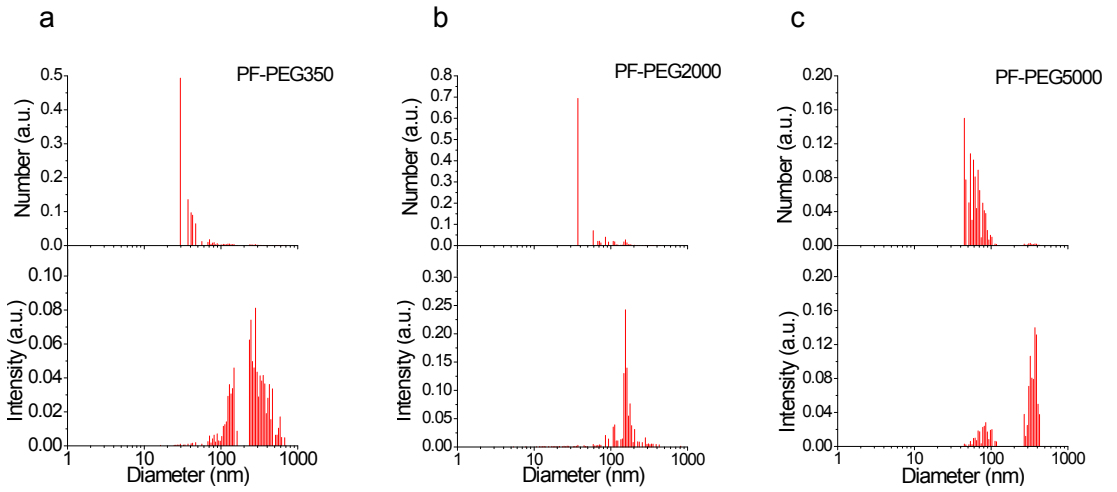

Figure S1. DLS size characterization of Pdots with different PEG chain lengths. (a) PF-PEG350, (b) PF-PEG2000 and (c) PF-PEG5000 Pdots. Upper panel show the distributions by the number and the lower panel by intensity of the hydrodynamic size of Pdots nanoparticles.

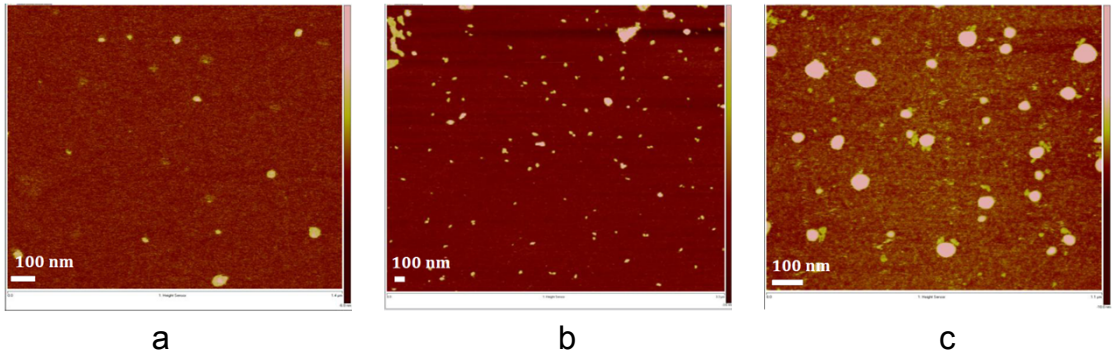

Figure S2. Atomic Force Microscopy images of Pdots with different PEG chain lengths. (a) PF-PEG350 Pdots, (b) PF-PEG2000 and (d) PF-PEG5000 Pdots.

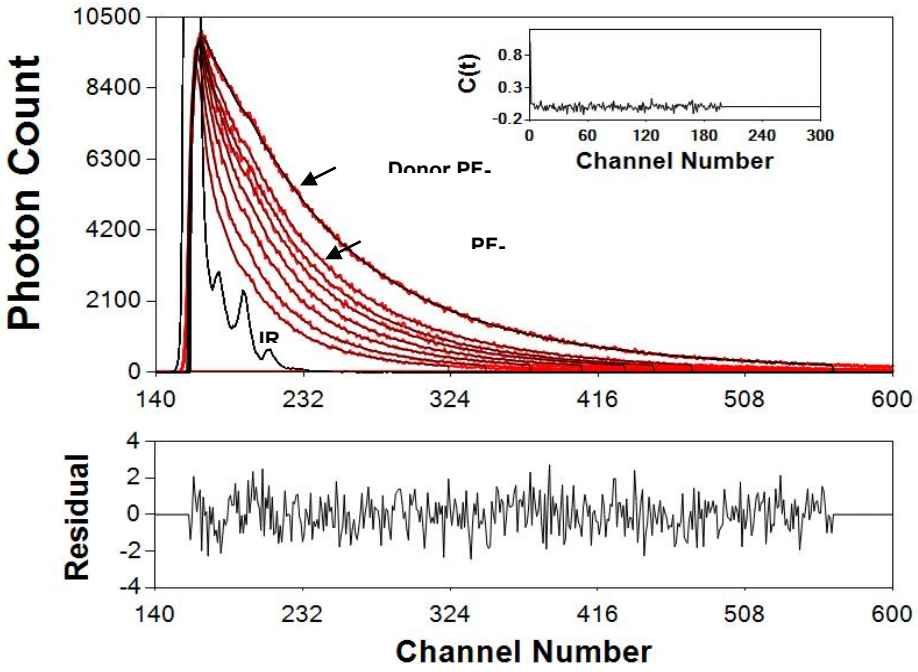

Figure S3. Time-resolved measurements for the donor PF-PEG350 alone and with increasing concentrations of RB were measured (red curves) at 25°C using the time correlated single-photon counting system and were fitted to multi exponential decay models (black lines). In the presence of increasing concentrations of the acceptor RB dye, the decay time of the donor PF-PEG350 is noticeably shorter (depicted in Figure 2). The associated residuals and the autocorrelation function are shown in the lower and upper insets. The decay rate of the PF-PEG350 with RB is accelerated due to the FRET effect. The residuals (bottom) and the corresponding autocorrelation functions (upper right) served as indicators of the quality of the fit of the experimental data to a multiexponential function.

These experiments monitored singlet oxygen's generation. The measurements show the decreasing fluorescence intensity of DMA, using the time drive mode of the fluorimeter. All the measured curves that were obtained for singlet oxygen experiments were corrected by their absorption and laser power. By this method we can estimate the relative singlet oxygen generation quantum yield (QY).

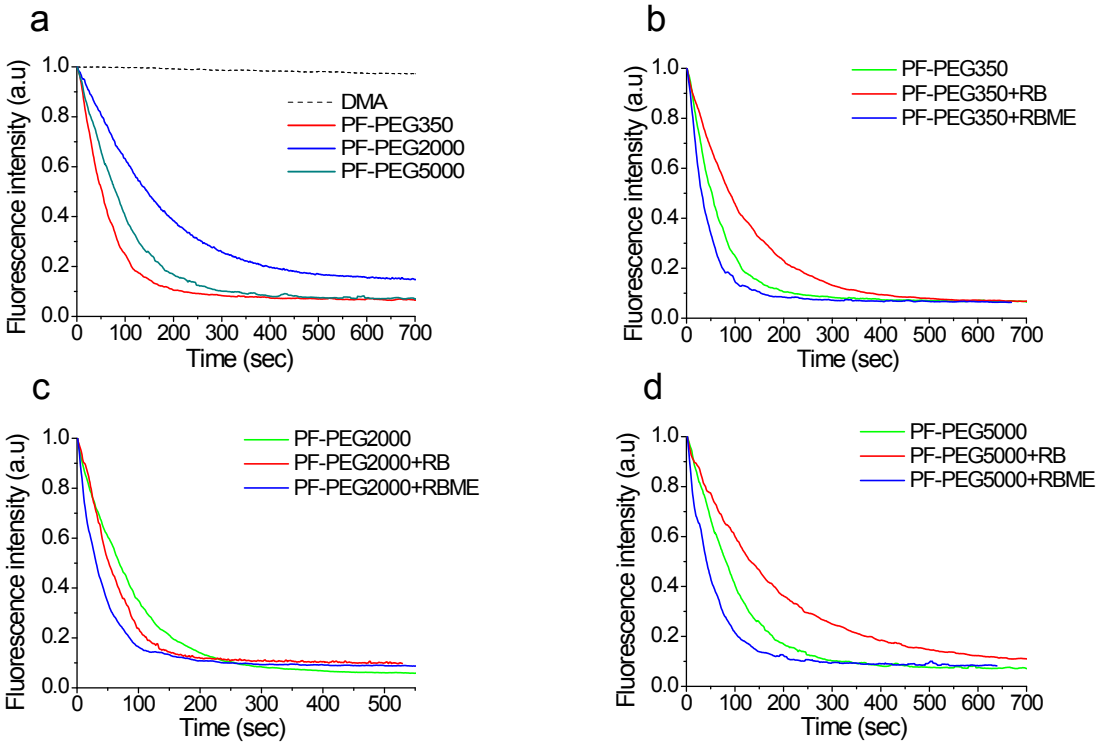

Figure S4. Dependence of DMA's diminishing fluorescence intensity (430 nm), under laser radiation (473 nm) on time (sec) for different PF Pdots samples. The optical density of the PF-PEG350, PF-PEG2000 and PF-PEG5000 at the laser's wavelength was 0.021, 0.014 and 0.024 respectively. The laser power was 1.11, 0.605, 2.7 and 0.79 mJ/cm^2, respectively.

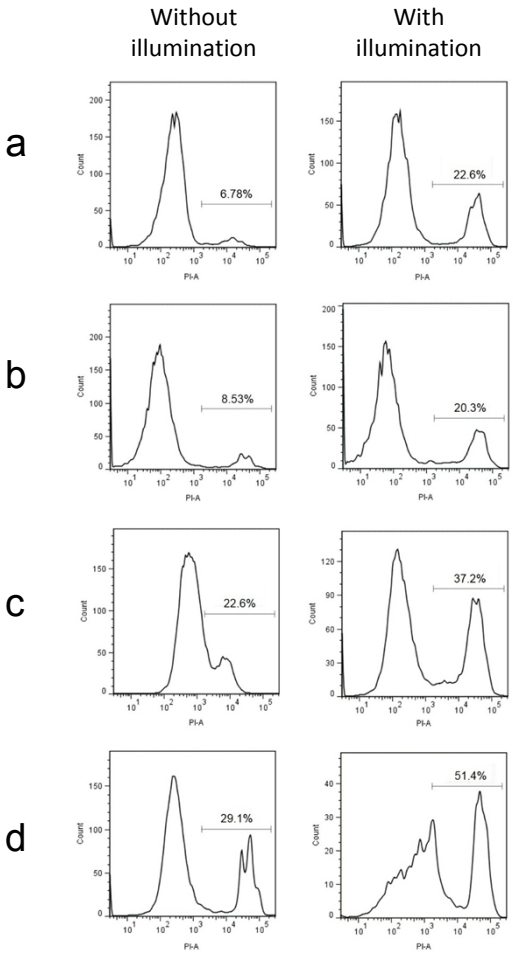

Figure S5. Flow cytometric analysis of MCF-7 cells which were stained with propidium iodide (PI) as an indicator of damaged cells. Histogram that shows number of cells upon propidium iodide (PI) fluorescence. The cells' damage without illumination (left) and caused by illumination (473 nm, 0.0015 J/cm^2) for 4 hours (right) is demonstrated in (a) untreated cells, (b) cells treated with Pdots, (c) RB and (d) Pdot-RB dyad. The samples were analyzed for PI fluorescence. Gating on a one-parameter histogram is sufficient to identify the dead cell population (in percentage).

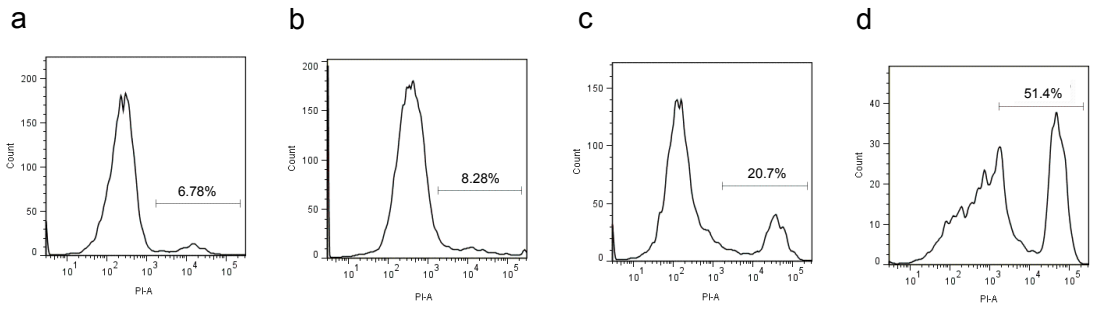

Figure S6. Flow cytometric analysis of MCF-7 cells which were stained with propidium iodide (PI) as an indicator of damaged cells. Histogram that shows number of cells upon PI fluorescence. (a) Control cells (untreated cells, without illumination) and the progress of damage by the Pdot-RB dyad after (b) 1 h, (c) 2 h and (d) 4 h of illumination (473 nm, 0.0015 J/cm^2). The samples were analyzed for PI fluorescence. Gating on a one-parameter histogram is sufficient to identify the dead cell population (in percentage).

		FL intensity (a.u.)	
		CH2 (480-560 nm)	CH3 (560-595 nm)
Ex: 488 nm	**Pdot**	61,925	38,782
	RB	3,0455	32,316
	Pdot+RB	66,448	**56,818**
Ex: 561 nm	**Pdot**	566	2,031
	RB	2,946	28,961
	Pdot+RB	3,358	29,433

Table S1. Mean intracellular intensity of MCF-7 cells collected in both channels while using 488 nm (main Pdot excitation) and 561 nm (main RB excitation) laser excitation.

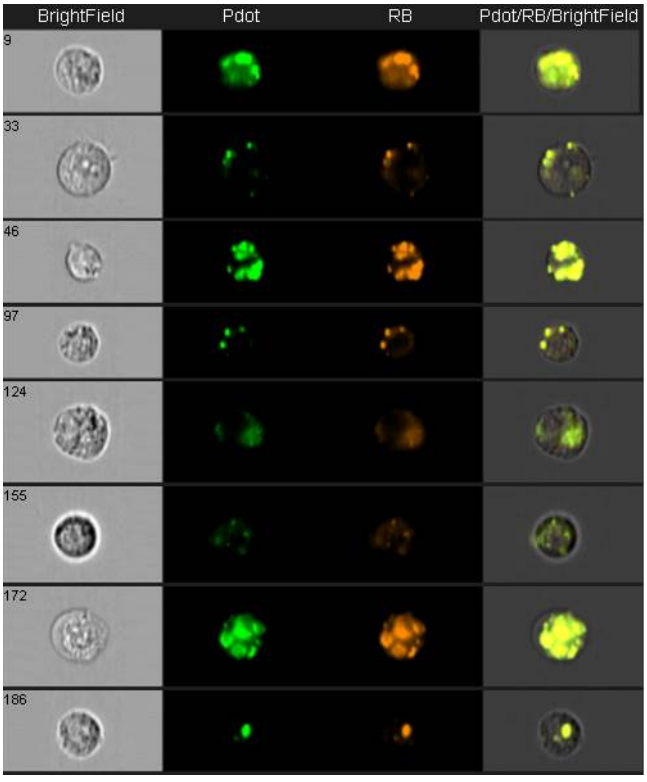

Figure S7. Cellular fluorescence of MCF-7 cells with Pdots-RB dyads incubated for 24 hours. Each cell is represented by a row of four images. From left to right: BrightField, CH2 (green fluorescence 480-560 nm which collected from the Pdot's emission), CH3 (orange fluorescence 560-595 nm which collected from the RB's emission) and FRET (represented with the co-localization parameter).