Supplementary Information

# Conjugated Polymer Dots for Biocompatible siRNA Delivery

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# Contents

**Experimental Section, Supplementary Table S1 and Fig. S1-S4.**



**Table S1**. Detailed siRNA sequences used in this work

| siRNA | Strand | Sequence (5'-end to 3'-end) |
|---|---|---|
| Control, siCtrl | Sense | AUGUAUUGGCCUGUAUUAGdTdT |
| | Anti-sense | CUAAUACAGGCCAAUACAUdTdT |
| Cy3-siRNA | Sense | Cy3-labeled UUCUCCGAACGUGUCACGUdTdT |
| | Anti-sense | ACGUGACACGUUCGGAGAAdTdT |
| siEG5 | Sense | UCGAGAAUCUAAACUAACUdTdT |
| | Anti-sense | AGUUAGUUUAGAUUCUCGAdTdT |

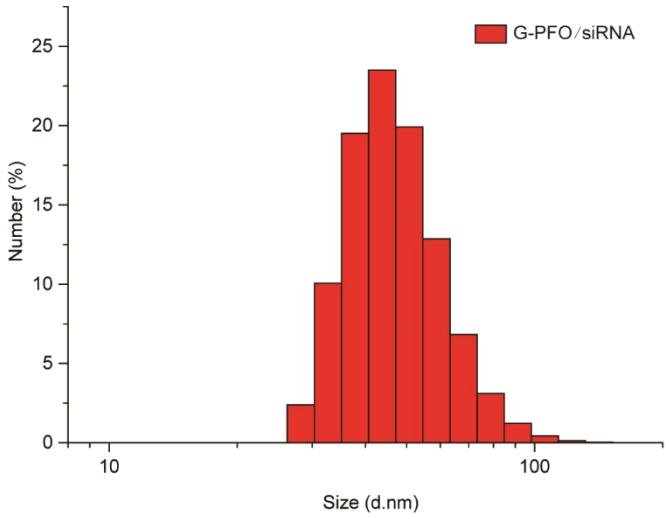


**Fig. S1** Size distribution of G-PFO/siRNA. Hydrodynamic diameter of G-PFO/siRNA complexes measured by dynamic light scattering.

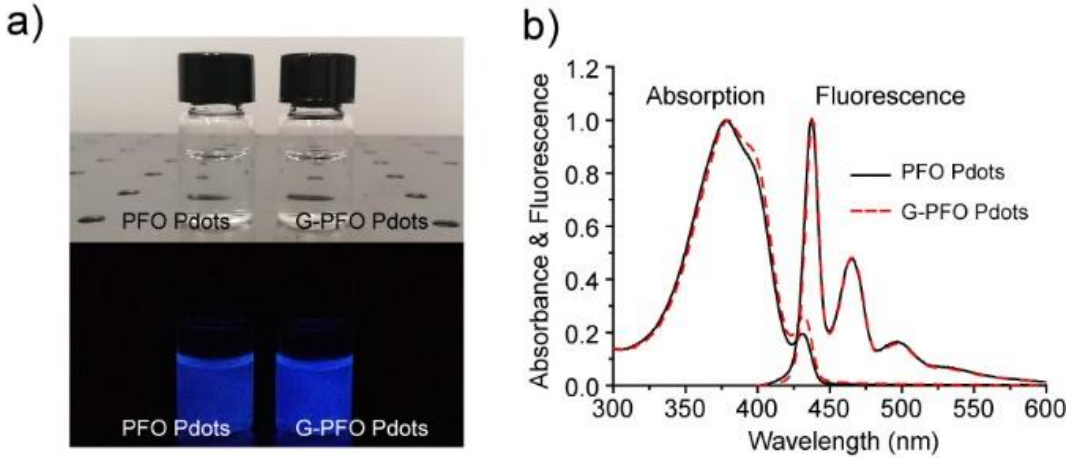


**Fig. S2** Optical properties of and PFO and G-PFO Pdots. (a) Photographs of the PFO and G-PFO solutions in water under daylight (upper) or 365 nm irradiation (lower). (b) Absorption spectra and emission spectra of PFO dots and G-PFO Pdots.

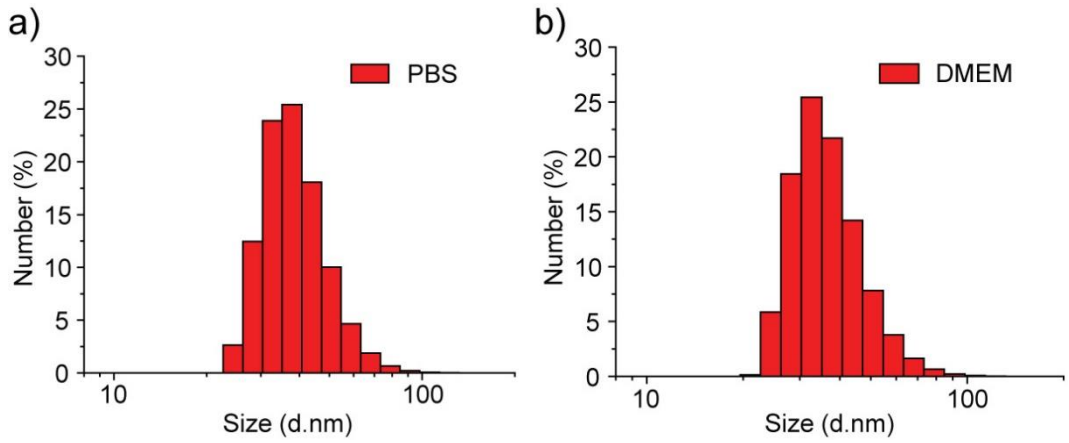


**Fig. S3** Stability of G-PFO Pdots in biological conditions. Hydrodynamic diameter of G-PFO Pdots after incubation in (a) PBS buffer or (b) DMEM medium for 24 hours measured by dynamic light scattering.

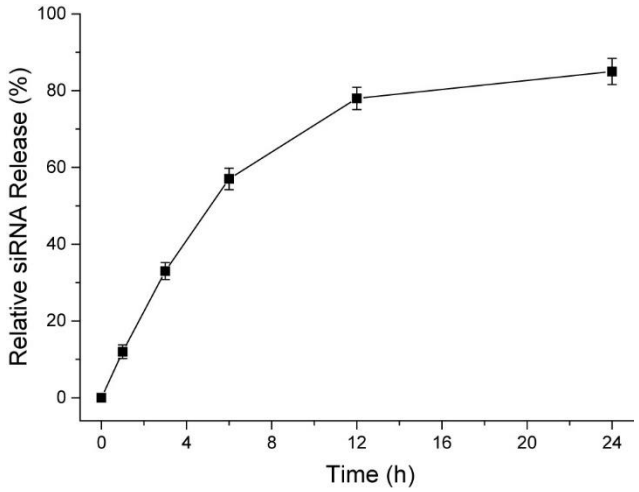


**Fig. S4** siRNA release profile of G-PFO/Cy3-siRNA complexes in biological condition.

G-PFO/Cy3-siRNA complexes was prepared according to the method in the experimental section. Subsequently, 5 mL G-PFO/Cy3-siRNA complexes in PBS were transferred into a dialysis bag which was submerged in 20 mL of PBS solution later at 37 $^{o}$C. At predetermined intervals (1, 3, 6, 12 and 24 h), 2 mL solution was taken out to determine the release siRNA amount by a fluorescence spectrometer.

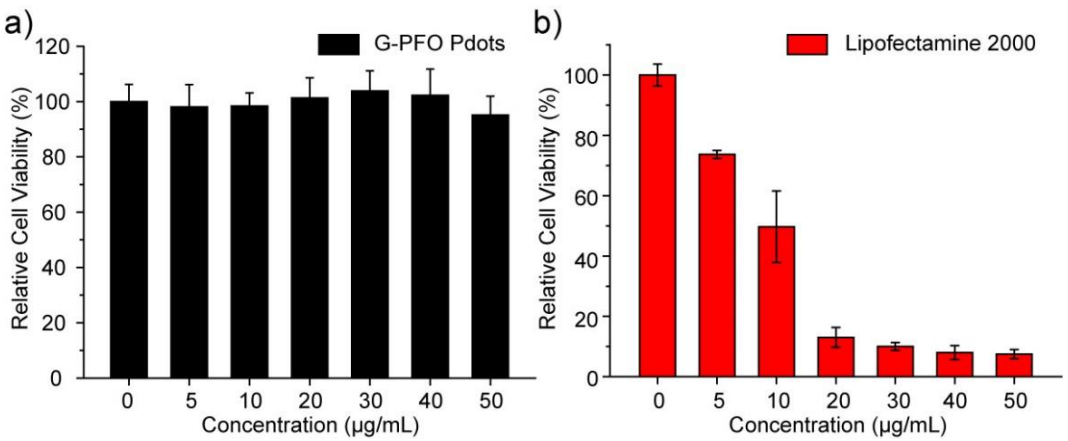


**Fig. S5** Cytotoxicity of G-PFO Pdots and Lipofectamine 2000. Relative viability of MCF-7 cells incubated with (a) G-PFO Pdots and (b) transfection agent Lipofectamine 2000 for 24 hours.

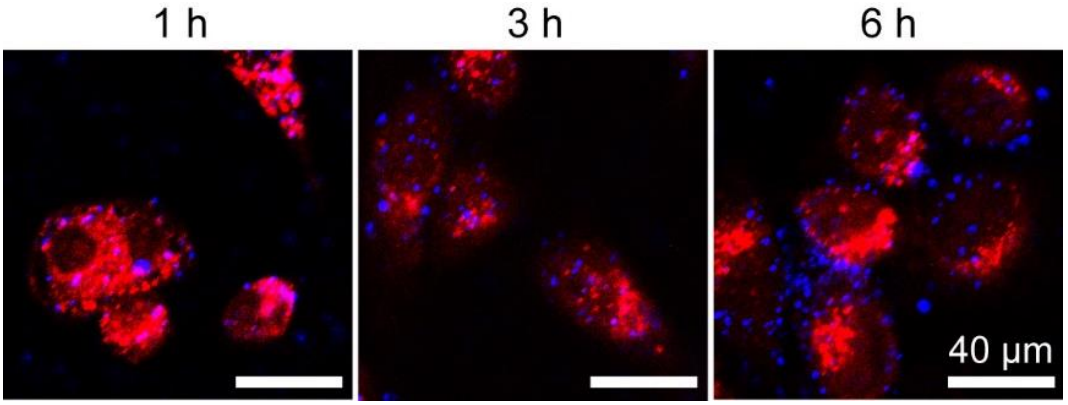


**Fig. S6** Endosomal escape of G-PFO Pdots in MCF-7 cells (Blue: PFO Pdots; Red: LysoTracker Red).

MCF-7 were incubated with G-PFO Pdots for different time intervals (1, 3 and 6 h) and followed by LysoTracker Red staining. The time-different colocalization of G-PFO Pdots and endosome/lysosome was observed under a confocal laser scanning microscope.

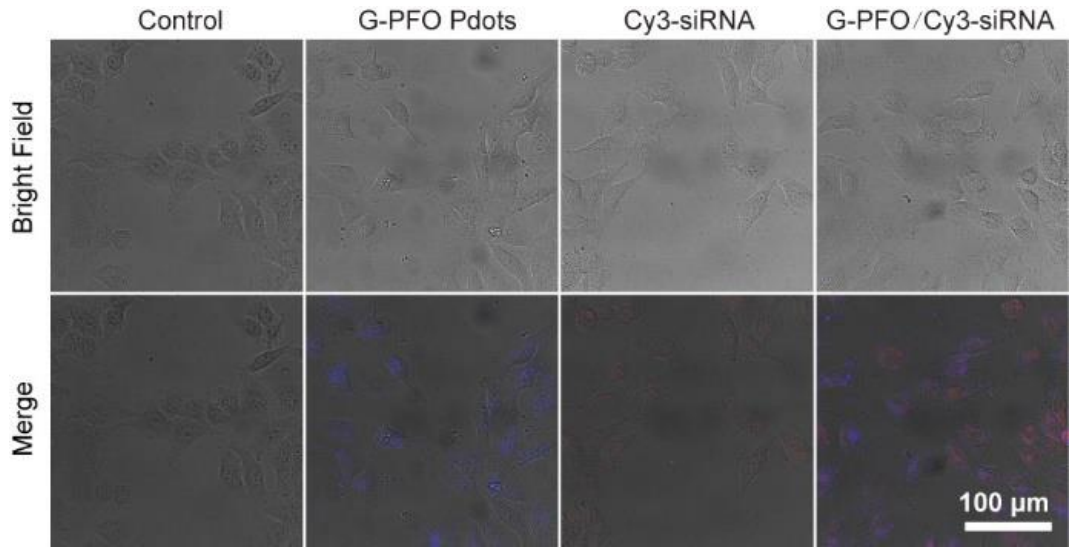


**Fig. S7** Bright field and merged images of MCF-7 cells corresponding to Fig. 6.

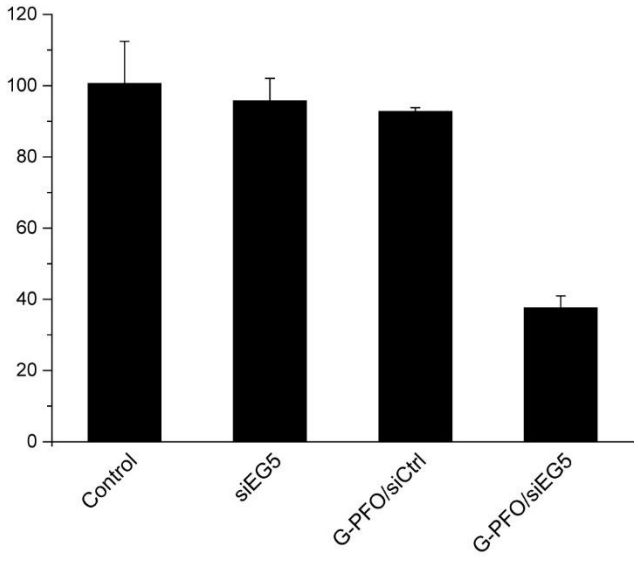


**Fig. S8** Relative EG5 mRNA level of MCF-7 cells incubated with different treatments.

Quantitative Real-Time PCR (qRT-PCR) was conducted to evaluate the EG5 mRNA level. After different treatments, total RNA was isolated from MCF-7 cells using the RNeasy Mini Kit and 2 μg of total RNA was then used for cDNA synthesis. qRT-PCR was carried out by an initial denaturation at 94 $^{o}$C for 30 s followed by 40 cycles, each consisting of 5 s at 94 $^{o}$C, 30 s at 60 $^{o}$C. Sequences for EG5 primers were 5'- GAACAATCATTAGCAGCAGAA-3' (Forward) and 5'- TCAGTATAGACACCACAGTTG-3' (Reverse). EG5 gene expression was normalized to Glyceraldehyde-3-phosphate dehydrogenase (GAPDH).