

Supplementary Information

Miktoarm Amphiphilic Block Copolymer with Singlet Oxygen-Labile Stereospecific β -Aminoacrylate Junction: Synthesis, Self-assembly, and Photodynamically Triggered Drug Release

*Gurusamy Saravanakumar¹, Hyeongmok Park¹, Jinhwan Kim², Dongsik Park¹, Swapan
Pramanick¹, Dae Heon Kim^{3,*} and Won Jong Kim^{1,*}*

¹Department of Chemistry, Pohang University of Science and Technology (POSTECH), Pohang
37673, Republic of Korea.

²Center for Self-assembly and Complexity, Institute for Basic Science (IBS), Pohang, 37673,
Republic of Korea.

³Department of Biology, Sunchon National University, Suncheon 57922, Republic of Korea.

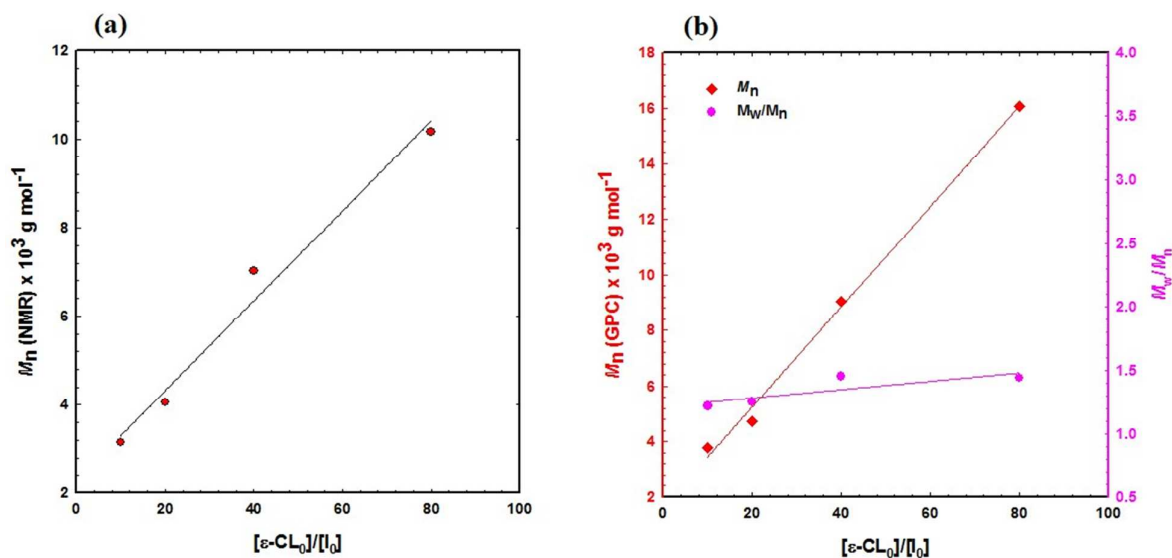


Figure S1. (a) The plot of feed $[M_0]/[I_0]$ versus M_n using $^1\text{H-NMR}$ and (b) $[M_0]/[I_0]$ versus M_n and M_w/M_n using GPC. The observed difference in molecular weights determined by $^1\text{H-NMR}$ and GPC is due to the use of polystyrene standards for calibration in the analysis of the GPC method.

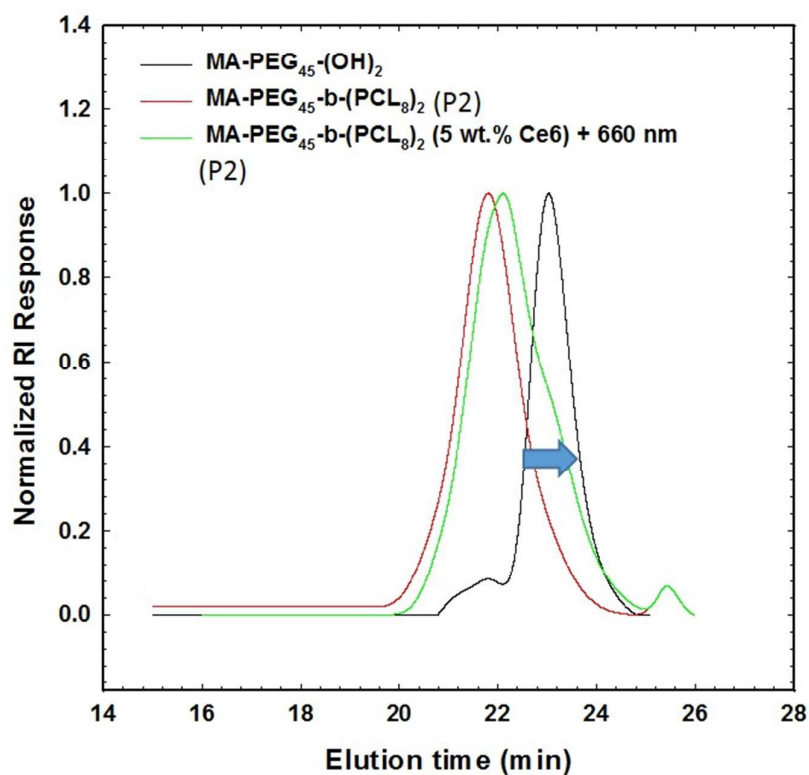


Figure S2. GPC trace of MA-PEG₄₅-b-(PCL₈)₂ (P2) before and after 660 nm laser irradiation for 30 min.

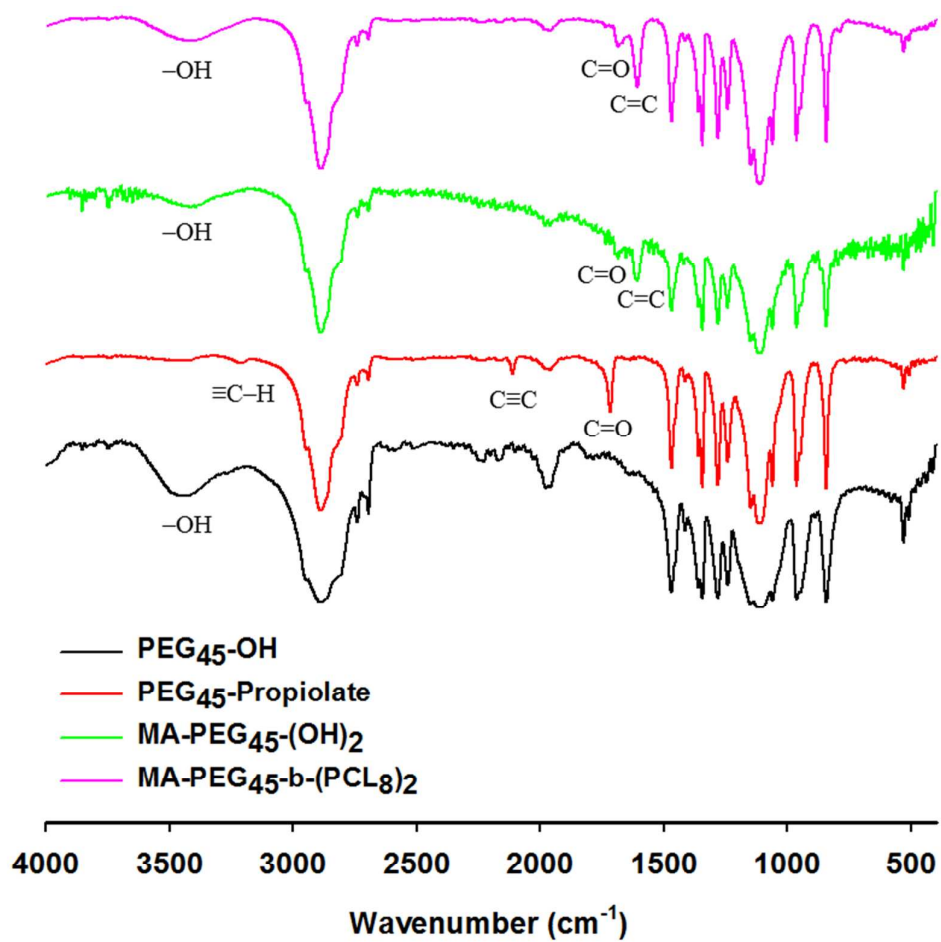


Figure S3. FT-IR spectra of PEG₄₅-OH, PEG₄₅-propiolate, MA-PEG₄₅-(OH)₂, MA-PEG₄₅-b-(PCL₈)₂

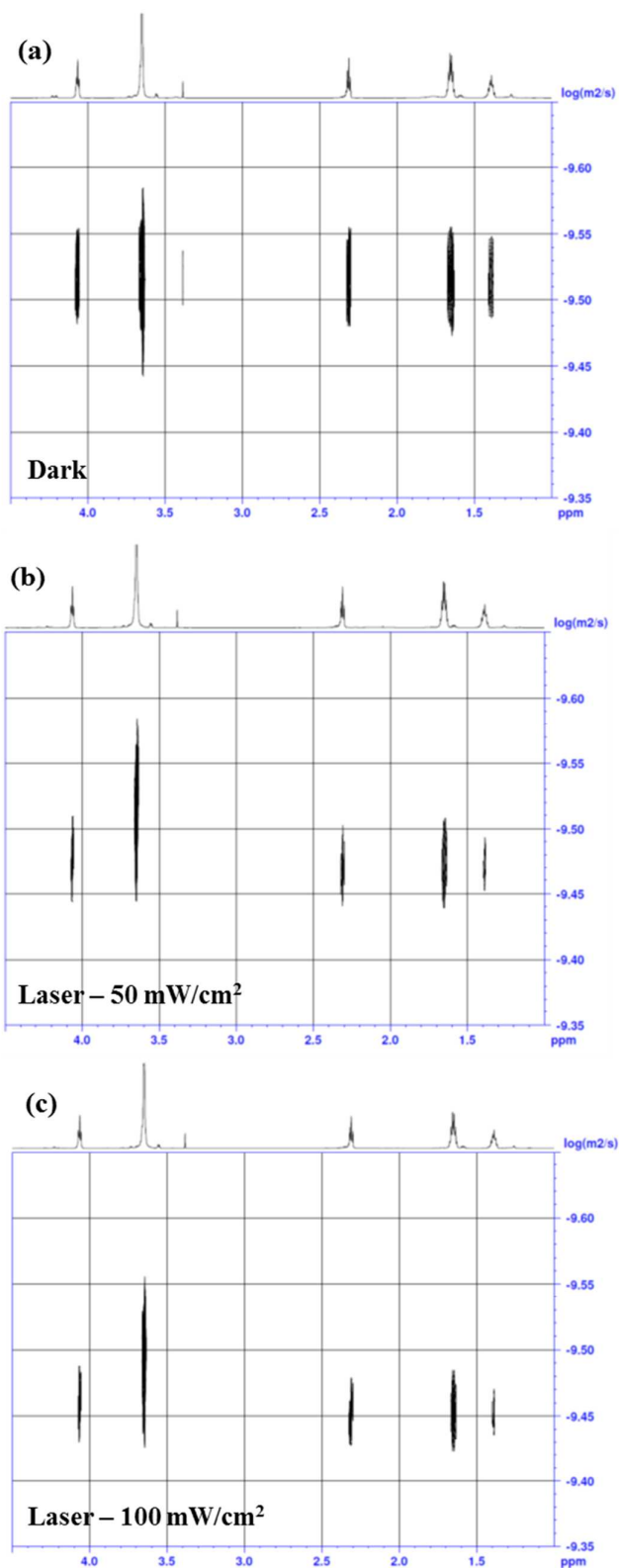


Figure S4. DOSY NMR of P2 with Ce6 (~5 wt%) in the (a) dark, and after exposing laser irradiation of power density (b) 50 mW/cm² and (c) 100 mW/cm² for 30 min, where the solvent is CDCl₃.

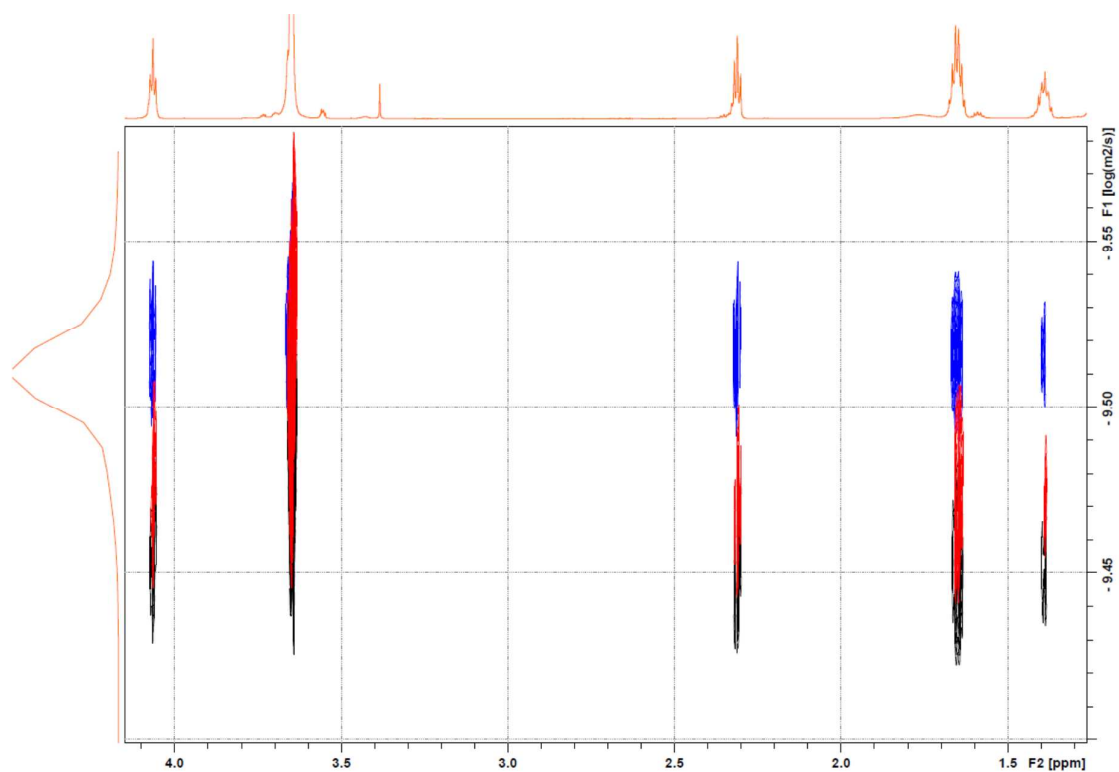


Figure S5. Comparison of three ^1H -DOSY NMR spectra of Figure S3. The spectra clearly indicates a slow diffusion coefficient for P2 (blue; $D = 2.961 \times 10^{-10} \text{ m}^2/\text{s}$) under dark condition, than for the P2 irradiated with light of $50 \text{ mW}/\text{cm}^2$ (red; $D = 3.283 \times 10^{-10} \text{ m}^2/\text{s}$) and $100 \text{ mW}/\text{cm}^2$ (black; $D = 3.407 \times 10^{-10} \text{ m}^2/\text{s}$).

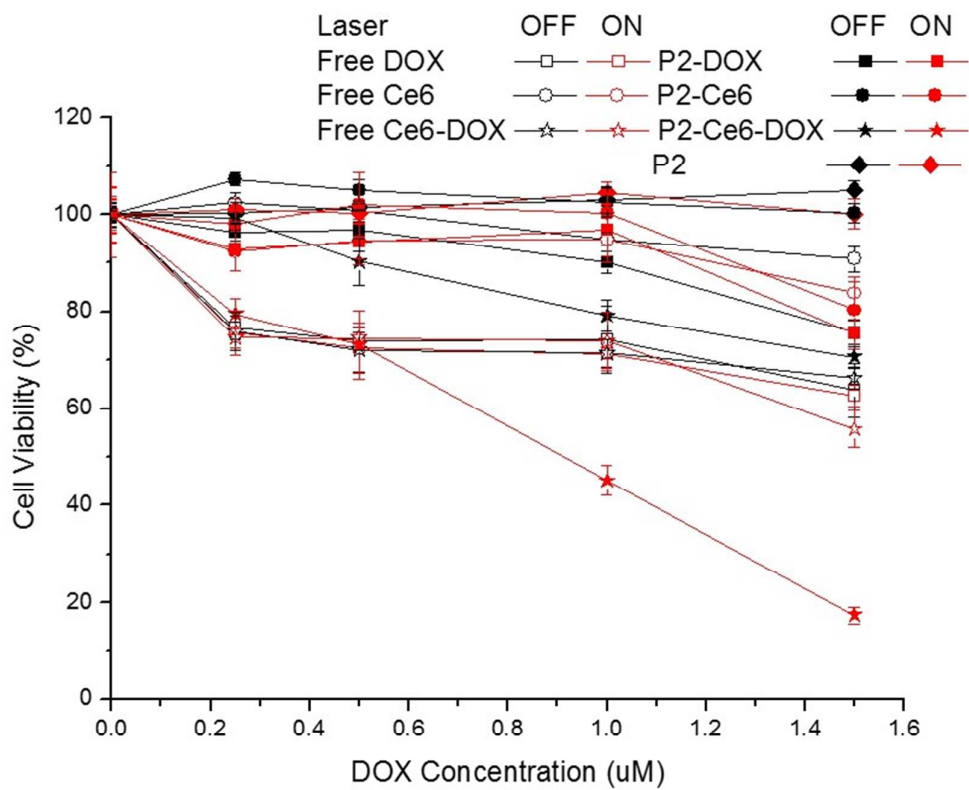


Figure S6. *In vitro* cytotoxicity evaluation of samples with different concentration scale of DOX on MDA-MB-231 cell lines.