Supporting Information

Engineered non-toxic cationic nanocarriers with photo-triggered slow-release properties[†]

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Figure S1. ¹H-NMR spectrum of PDMS-Br macroinitiator in CDCl₃, 400 MHz.



Figure S2. ¹H-NMR spectrum of 2-nitrobenzyl-2-chloroacetate (CANBE) in CDCl₃, 400 MHz.



Figure S3. ¹H-NMR spectra of pristine (AB5), and propyl-quaternized (ABQP5) diblock copolymers in CDCl₃, 400 MHz.



Figure S4. ¹H-NMR spectra of propyl-quaternized (ABQP5 and ABQP27) diblock copolymers in DMSO-d₆, 400 MHz.



Figure S5. ¹H-NMR spectra of photo-cleavable (ABQ5 and ABQ27) diblock copolymers in DMSO- d_6 , 400 MHz.



Figure S6. UV-Vis spectra of ABQn nanoparticle dispersions in PBS (A, B), and of ABQn chains in EtOH solutions (C, D), over an irradiation time of 60 minutes, showing the formation of a 'shoulder' at ~ 320 nm corresponding to the formation of side-product, 2-nitroso benzaldehyde.





Figure S7. TEM micrographs of cationic nanoparticles formed by self-assembly of ABQP5 (a, c), and ABQP27 (b, d) respectively. Additional TEM micrographs of cationic nanoparticles based on AB5 (A'), ABQ5 before (B') and after irradiation (C'), AB27 (D'), ABQ27 before (E') and after irradiation (F').



Figure S8. Calibration curves of free SRB and SRB-loaded ABQ27 nanoparticles in PBS buffer.



Figure S9. HeLa cell growth versus concentration after 24 h of incubation with ABQn nanoparticles pre-irradiated for 30 minutes. Error bars are shown as standard deviations of triplicate (n = 3) measurements.



Figure S10. SRB-loaded ABQ27 nanoparticles incubated on HeLa cells for 24 h. (A) 200 μ g mL⁻¹ sample after 30 minutes pre-irradiation; (B) 200 μ g mL⁻¹ non-irradiated sample; (C) 400 μ g mL⁻¹ sample after 30 minutes pre-irradiation; (D) 400 μ g mL⁻¹ non-irradiated sample; (E) non-treated control cells. All CLSM micrographs have the same magnification.



Figure S11. HeLa cell growth after 24 h of incubation with 400 μ g mL⁻¹ pre-irradiated, and nonirradiated ABQ27 nanoparticles. Error bars are shown as standard deviations of three individual measurements.