Supporting Information

Gradient Release of Cardiac Morphogen by Photo-responsive Polymer Micelles for Gradient-mediated Variation of Embryoid Body Differentiation

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Figure S1. DLS-based size measurement of mPEG\textsubscript{113}-b-PCL\textsubscript{83}-co-CIPCL\textsubscript{98} and mPEG\textsubscript{113}-b-PCL\textsubscript{83}-co-N\textsubscript{3}PCL\textsubscript{98} micelles at 0.2 mg/mL in DPBS (pH 7.4).

Figure S2. TEM images of mPEG\textsubscript{113}-b-PCL\textsubscript{83}-co-N\textsubscript{3}PCL\textsubscript{98}-g-ONB-RA micelles at 1 mg/mL concentration (DPBS, pH 7.4, 25 °C).
Figure S3. UV absorption spectra of mPEG$_{113}$-b-PCL$_{83}$-co-N$_3$PCL$_{98}$-g-ONB-RA micelles at 0.2 mg/mL before and after gradient-mediated exposure to UV light. A decrease in absorption for a specified gradient column compared to control was used for calculating the amount of RA released from polymer micelles.
Figure S4. UV absorption spectra of mPEG$_{113}$-b-PCL$_{83}$-co-N$_3$PCL$_{98}$-g-ONB-RA micelles for time-dependent release of retinoic acid (0.2 mg/mL in DPBS, pH 7.4, 25 °C) through the photo-gradient. The gradient-mediated release data at (A) 5, (B) 15, (C) 30, and (D) 60 second time points demonstrate light intensity-dependent RA release from the polymer micelles.
Figure S5. UV absorption spectra of mPEG_{113}-b-PCL_{83}-co-N_{3}PCL_{98}-g-ONB-RA micelles for concentration-dependent release of retinoic acid after 1 min photo-irradiation. Release of RA from polymer micelles at (A) 0.2, (B) 0.1, (C) 0.075, and (D) 0.05 mg/mL concentrations. All release conditions showed a similar RA release pattern that was dependent on light intensity passing through the photo-gradient.
Figure S6. UV absorption spectra of mPEG$_{113}$-b-PCL$_{83}$-co-N$_3$PCL$_{98}$-g-ONB-RA micelles (0.05 mg/mL) before and after photo-gradient-mediated exposure for 5 seconds.