Supporting Information

Photodegradable Polymer Nanocapsules Fabricated from Dimethyldiethoxysilane Emulsion Templates for Controlled Release

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Supporting Figures:

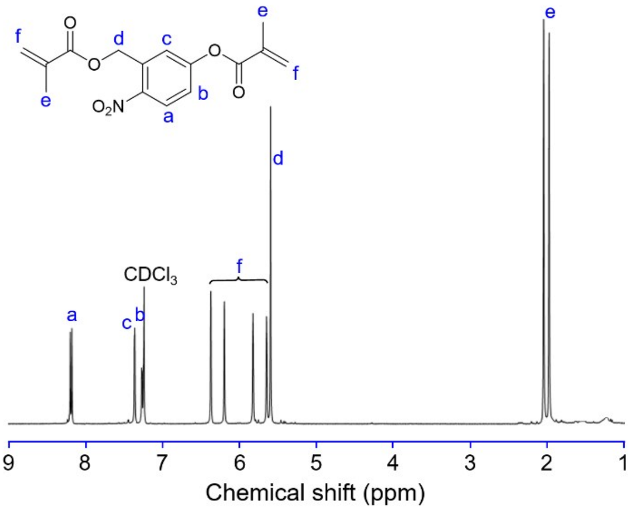

Figure S1. ^{1}H NMR spectrum of the ONB cross-linker in $CDCl_3$. The characteristic peaks at 8.18 ppm, 7.36 ppm, and 7.27 ppm can be attributed to *o*-nitrobenzyl group, and the signals at 2.05 ppm and 1.98 ppm are assigned to the protons of the methacryloyl group, indicating the successful synthesis of the ONB cross-linker.

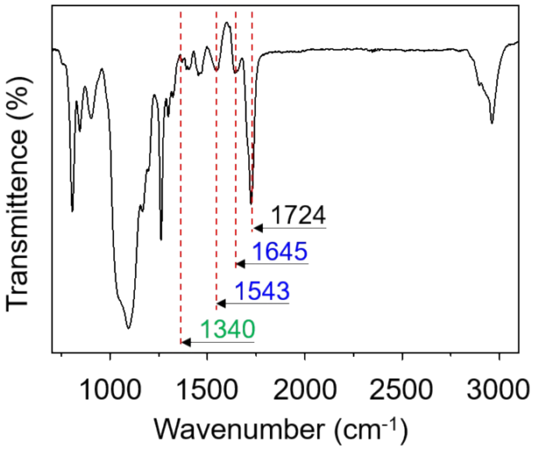

Figure S2. FTIR spectrum of the P(NIPAM-ONB-MAA) polymer nanocapsules prepared from 300 mg NIPAM and 50 mg MAA monomers.

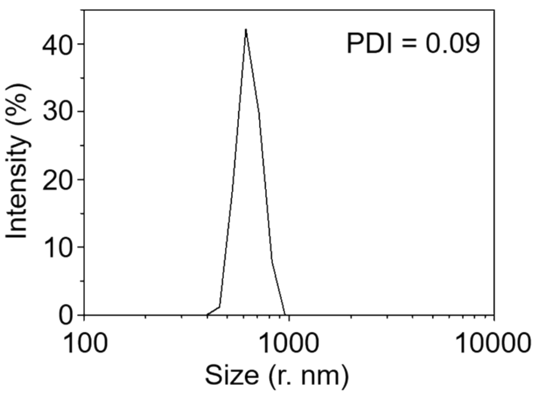

Figure S3. Intensity average size distribution of the prepared P(NIPAM-ONB-MAA) polymer nanocapsules (300 mg NIPAM and 50 mg MAA).

The intensity-average hydrodynamic diameter and polydispersity index (PDI) of the prepared P(NIPAM-ONB-MAA) polymer nanocapsules were measured to be around 615 nm and 0.09, respectively.

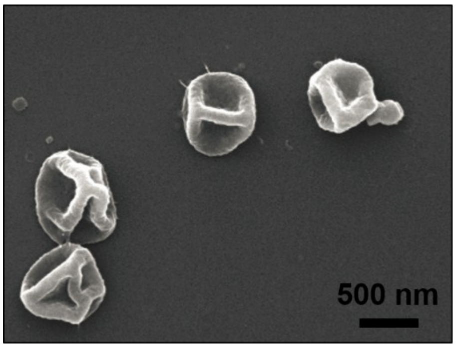

Figure S4. SEM image of the p(NIPAM-ONB-MAA) polymer nanocapsules prepared from 200 mg NIPAM and 25 mg MAA monomers.

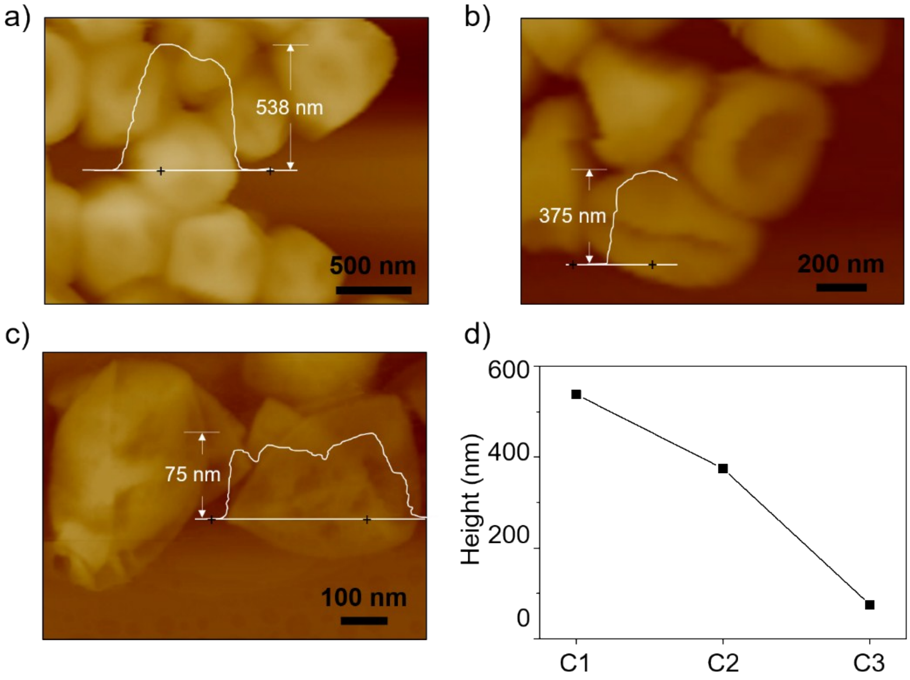

Figure S5. AFM images of a) P(NIPAM-ONB-MAA) polymer nanocapsules prepared from 300 mg NIPAM and 50 mg MAA monomers (C1), b) P(NIPAM-ONB-MAA) polymer nanocapsules prepared from 200 mg NIPAM and 25 mg MAA monomers (C2), and c) PONB polymer nanocapsules without NIPAM and MAA (C3); d) heights of the polymer nanocapsules.

The heights of the polymer nanocapsules prepared with 300 mg NIPAM and 50 mg MAA, 200 mg NIPAM and 25 mg MAA, and without NIPAM and MAA were measured to be 538 nm, 375 nm, and 75 nm, respectively. It is noted that the height of polymer nanocapsules decreased with the decrease of the amount of monomers added in the polymerization. The rigidity of capsule shells could be relevant to the amount of monomers. The less the amount of monomers, the thinner the thickness, the further the collapsion of the hollow capsule and then the lower the height of the capsule.

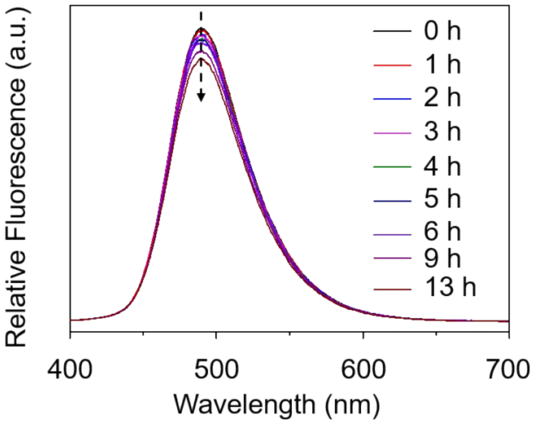

Figure S6. Fluorescence emission spectra of coumarin 102 loaded in the P(NIPAM-ONB-MAA) polymer nanocapsules at 45 ℃ (λ_{ex} = 390 nm). No significant release of encapsulated cargo molecules occurred at the high temperature.

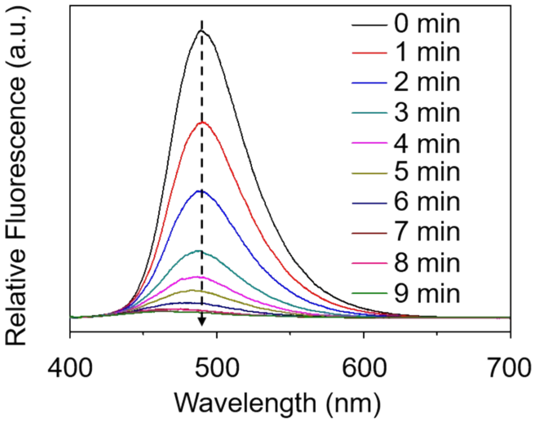

Figure S7. Fluorescence emission spectra of coumarin 102 loaded in the P(NIPAM-ONB-MAA) polymer nanocapsules upon UV irradiation (365 nm, 95 mW/cm^2) (λ_{ex} = 390 nm).

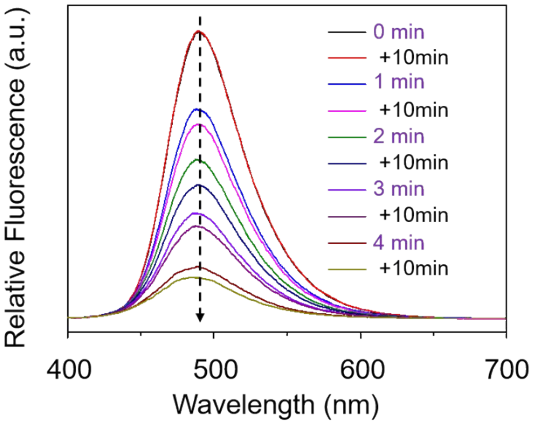

Figure S8. Fluorescence emission spectra of coumarin 102 loaded in the P(NIPAM-ONB-MAA) polymer nanocapsules at various times (λ_{ex} = 390 nm).

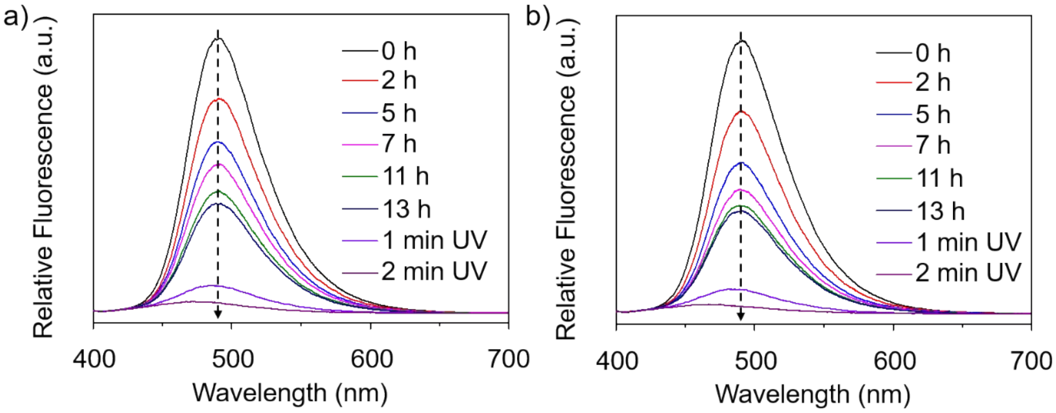

Figure S9. Fluorescence emission spectra of coumarin 102 loaded in the P(NIPAM-ONB-MAA) polymer nanocapsules: a) at pH 5.5 first for 13 h and then with UV light irradiation (365 nm, 95 mW/cm^2) for 2 min, b) at pH 4.0 first for 13 h and then with UV light irradiation (365 nm, 95 mW/cm^2) for 2 min, respectively (λ_{ex} = 390 nm).