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Supporting Information

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Nanoparticle-Based Platform for Activatable Fluorescence Imaging and Photothermal Ablation of Endometriosis

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Dye Release: The drug release profile of dye (SiNc) from the PEG-PCL nanoparticles was evaluated in PBS at 37°C at pH 7.4. The developed nanoplatform was dissolved in PBS buffer and placed in a Float-A-Lyzer dialysis tube (molecular weight cutoff of 50 kDa). The dialysis tube was immersed in the appropriate medium and incubated at a constant temperature of 37 °C. At fixed time intervals, 200 µL of the sample were withdrawn from the dialysis tube to record the absorbance of dye (785 nm). After each absorption measurement, the sample was returned to the dialysis tube for further incubation. The dye content in the delivery system at different time points was quantified based on absorption spectra of sample, with a prominent dye peak appearing (UV-1800 spectrophotometer, Shimadzu, Carlsbad, CA). The percentage of drug release at different time points was calculated as follows: Dye release (%) = [dye]R/[dye]T x 100, where [dye]R is the amount of dye released at collection time and [dye]T is the total amount of dye that was encapsulated in the delivery system.

Fluorescence spectra of the internalized SiNc-NP into endometriotic cells: Briefly, primary macaque endometriosis cells were seeded into a 96-well plate at a density of ~1.0 x 10^4 cells per well, and incubated with "always on" SiNc-NP at a concentration of 30µg SiNc mL^{-1} for 24 h. Prior to fluorescence spectra measurements, strong fluorescence signal generated by SiNc-loaded nanoparticles was confirmed inside of endometriotic cells with fluorescence microscopy. Fluorescence spectra of the internalized nanoparticles into endometriotic cells were recorded with Cary Eclipse R3896 fluorescence spectrophotometer with the microplate reader accessory.

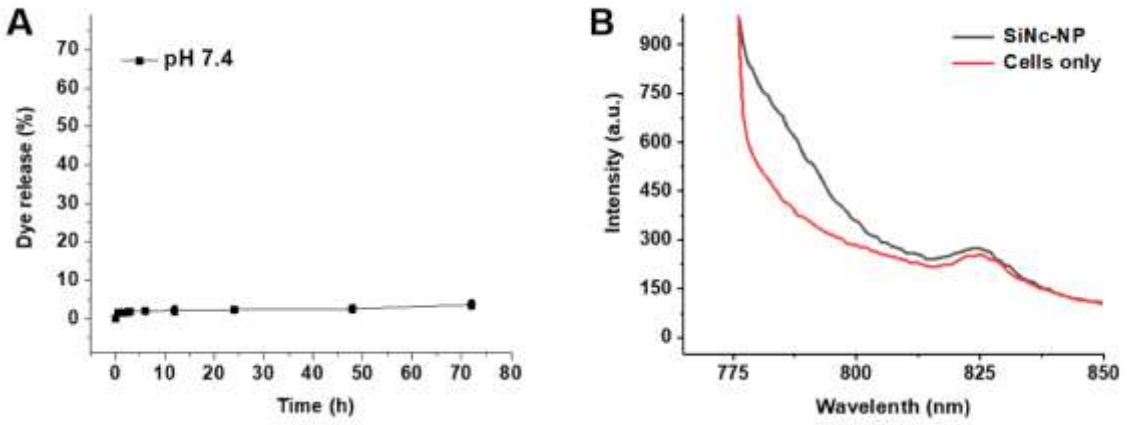

Figure S1: (A) The release profile of SiNc from SiNc-PNP incubated at 37 °C in PBS buffer at pH 7.4. **(B)** Fluorescence spectra (excitation wavelength = 750 nm) of macaque endometriosis cells (red) and macaque endometriosis cells incubated with "always on" SiNc-NP (black) for 24 h.

Table S1. The blood levels of blood urea nitrogen (BUN) and creatinine illustrating kidney function; alkaline phosphatase (ALP) and alanine aminotransferase (ALT) illustrating liver function, and creatine kinase (CK) illustrating heart and skeletal muscle function in non-treated mice (Control) and mice intravenously injected with "activatable" SiNc-NP, assessed at 96 hours post injection.

	BUN (mg/dL)	**Creatinine (mg/dL)**	**ALP (U/L)**	**ALT (U/L)**	**CK (U/L)**
Control	30.2 ± 3.9	0.17 ± 0.05	130.7 ± 28.1	60.7 ± 12.8	488.2 ± 91.8
SiNc-NP	30.3 ± 4.4	0.20 ± 0.03	104.5 ± 19.4	41.8 ± 11.5	485.5 ± 218.3

Table S2. The blood levels of electrolytes (calcium (Ca), phosphorus (P), sodium (Na), potassium (K), chloride (Cl)) and total carbon dioxide (tCO2) in non-treated mice (Control) and mice intravenously injected with "activatable" SiNc-NP, assessed at 96 hours post injection.

	Ca (mg/dL)	**P (mg/dL)**	**Na (mEq/L)**	**K (mEq/L)**	**Cl (mEq/L)**	**tCO2 (mEq/L)**
Control	10.3 ± 0.4	106.3 ± 2.1	130.7 ± 28.1	60.7 ± 12.8	147.8 ± 1.8	10.3 ± 0.3
SiNc-NP	10.6 ± 1.2	107.5 ± 1.5	104.5 ± 19.4	41.8 ± 11.5	140.2 ± 1.5	10.6 ± 0.3

Table S3. The blood levels of total protein and albumin in non-treated mice (Control) and mice intravenously injected with "activatable" SiNc-NP, assessed at 96 hours post injection.

	Total protein (U/L)	**Albumin (U/L)**
Control	268.7 ± 33.4	100.0 ± 10.5
SiNc-NP	295.5 ± 18.3	93.0 ± 8.3

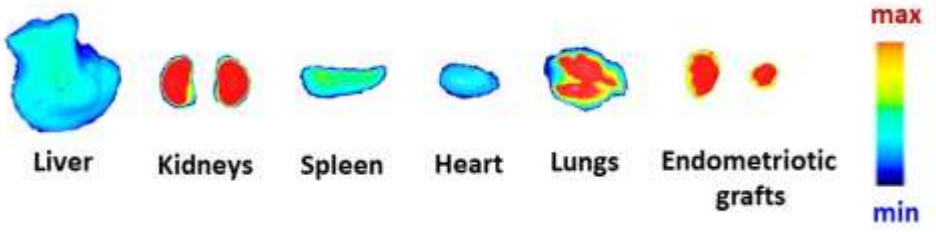

Figure S2. Representative NIR fluorescence images of organs and endometriotic grafts resected from a mouse 24 h after intravenous injection of "always on" SiNc-NP.

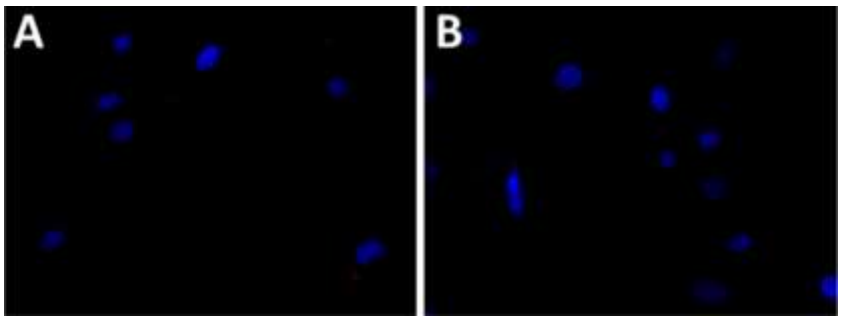

Figure S3. Representative fluorescence microscopy images of macaque kidney stromal cells incubated with "always on" SiNc-NP (**A**) and "activatable" SiNc-NP (**B**) for 24 h. The red and blue colors reflect the fluorescence signal generated by SiNc and NucBlue (nuclei staining), respectively.