

## Supplementary

### **Size effect of liposomes on centimeter-deep ultrasound-switchable fluorescence imaging and ultrasound-controlled release**

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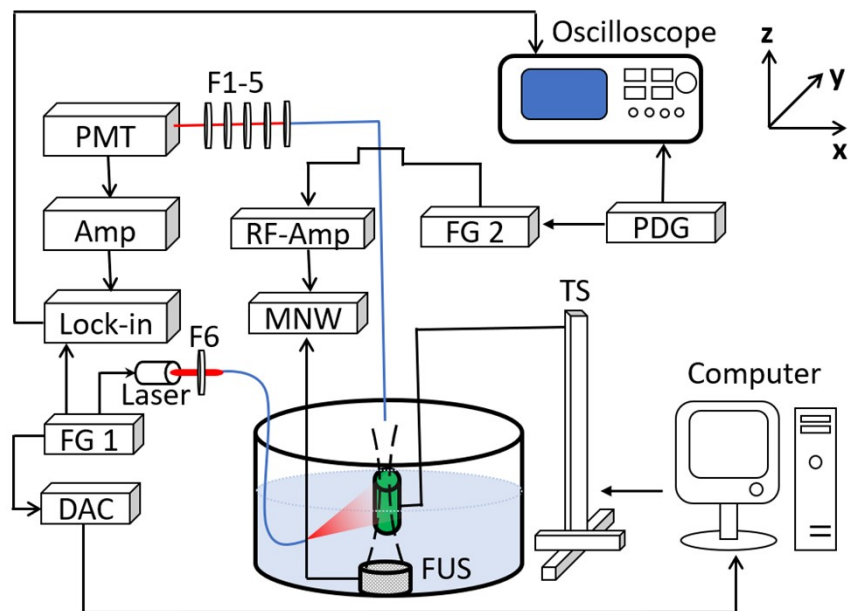
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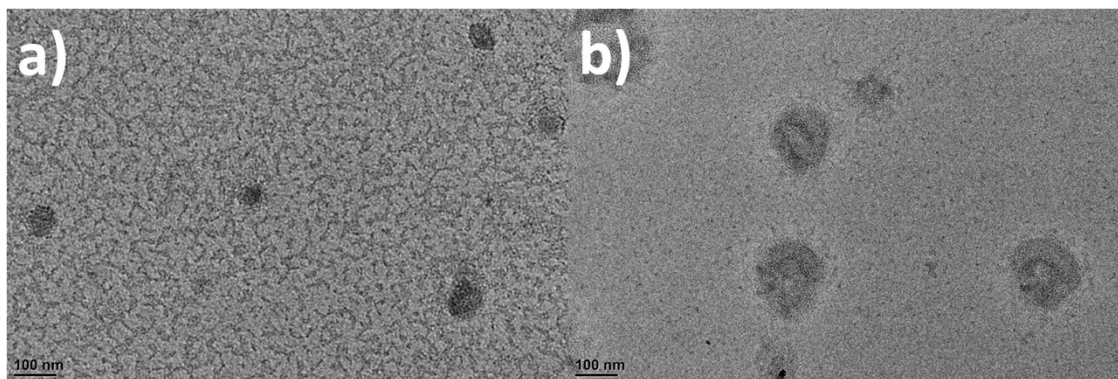
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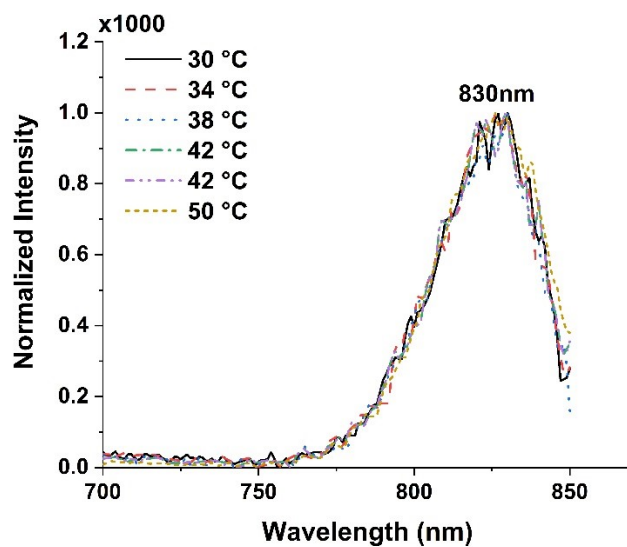
**Figure S1** Schematic diagram of USF imaging and release test setup. FUS: focused ultrasound; DAC: data acquisition card; FG 1: function generator 1; Amp: Amplifier; PMT: photomultiplier; F1-5: emission filters; RF-Amp: radio-frequency power amplifier; MNW: matching network; F6: excitation filter; FG 2: function generator 2; PDG: pulse delay generator; TS: 3-dimensional transition stage.



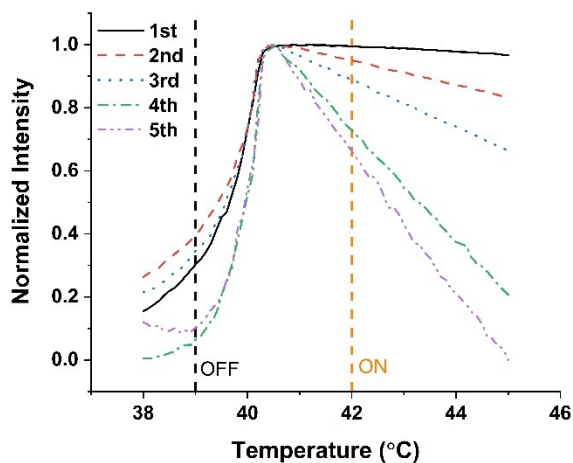
**Figure S2** TEM image of the a)30nm and b)200 nm filtered ICG-liposomes. The scale bar represents 100nm.

### TEM method

ICG-liposome solution of 8  $\mu\text{L}$  was dropped on a Formvar film (200 square mesh copper) and incubated for 2.5min before washed with 10  $\mu\text{L}$  of water for 3 times. 8  $\mu\text{L}$  of 2% uranyl acetate was then added on the film and dried in room temperature. The TEM (H-7500, Hitachi, Japan) image of the 30nm and 200nm filtered ICG-liposomes were taken using a voltage of 300kV. Acquired TEM images were shown in Figure S2.



**Figure S3** Temperature effect on the emission spectrum of 200 nm filtered ICG-liposomes.



**Figure S4** Fluorescence intensity with respect to the change of temperature for 5 continuous cycles of switch on/off test. 200 nm filtered ICG-liposomes were considered stable within 3 cycles of on/off. After 3 cycles, the fluorescence intensity continuous to drop after fully switched on.