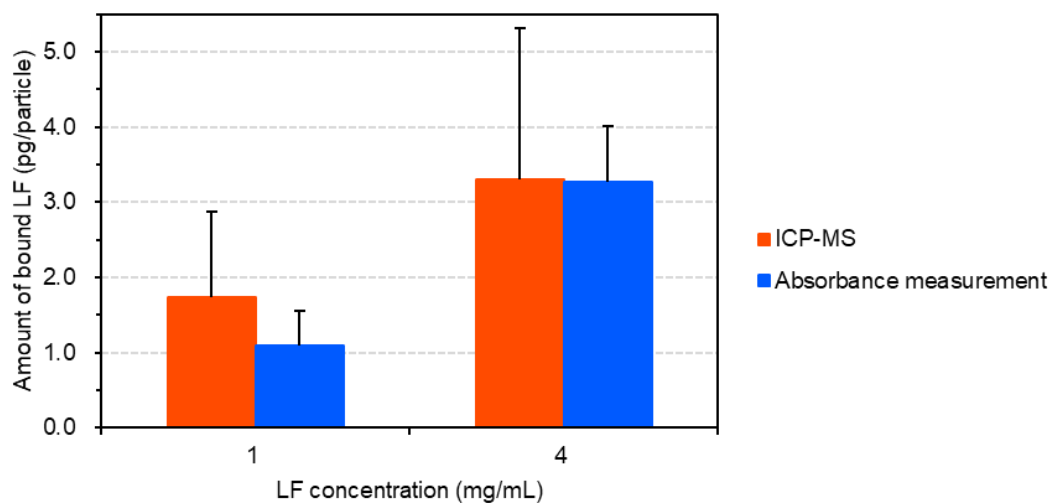
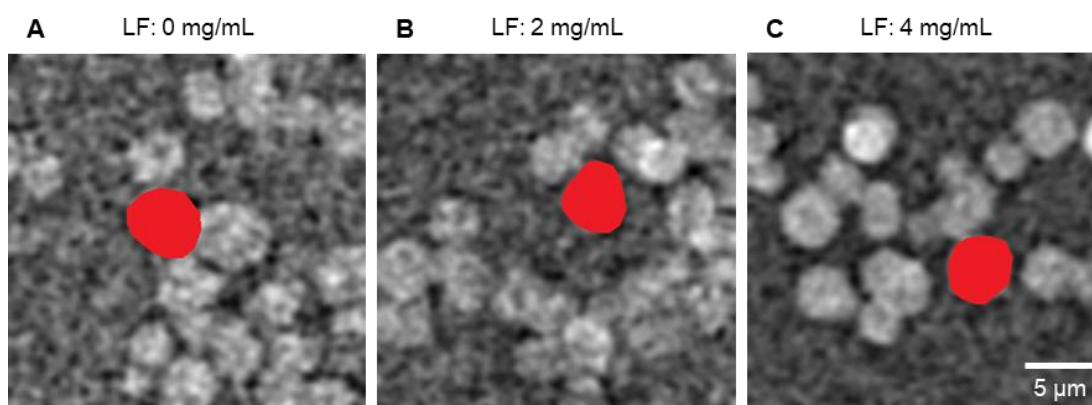


## Supplementary Materials



**Figure S1.** Quantification results of the LF (in terms of amounts per particle) bound to mesoporous SiO<sub>2</sub> microspheres by element-based ICP-MS analysis and bulk analysis techniques using the number of particles ( $8.2 \times 10^7$  particles) in 1 mg SBA24 (calculated with the mean particle mass of  $1.2 \times 10^{-8}$  mg determined by single-particle ICP-MS).



**Figure S2.** Mask images for calculating the Raman spectrum of SBA24 particles. Images of each mask used to calculate the Raman spectrum at LF concentrations of 0, 2, and 4 (mg/mL). The average value of the Raman spectrum for each pixel in the mask was calculated to obtain the result shown in Figure 2(C).