Supporting Information
for
Ultrabright NIR fluorescent mesoporous silica nanoparticles

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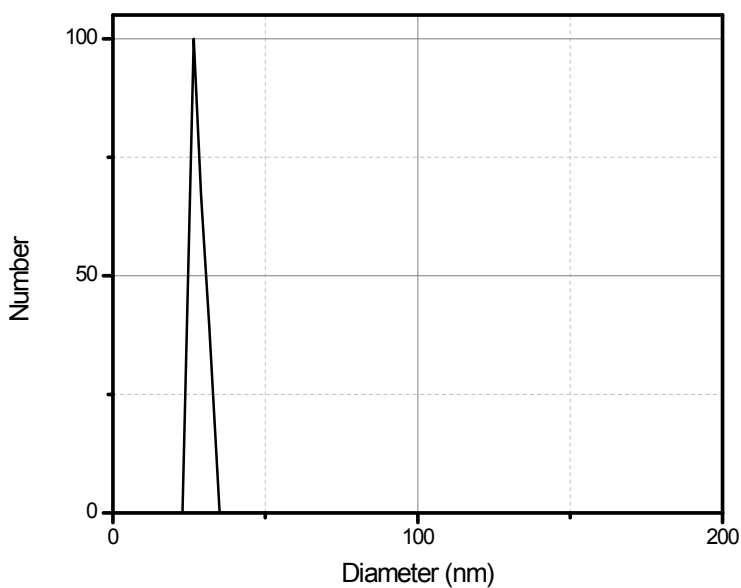Washington University, St. Louis, MO 63110

Figure.S1. Size distribution of ultrabright NIR fluorescent silica nanoparticles obtained by

means of the dynamic light scattering technique.

Quantum yield measurement

All the samples are in water and excited at 720 nm in order to get full emission integration. ICG is the standard. The integration is obtained from FluorEscense software with peak information add-on (Horiba JobinYvon).

$$\Phi_{Si\_LS277} = \Phi_{ICG} * \frac{Slope_{Si\_LS277}}{Slope_{ICG}}$$

Φ_{Si_LS277} = 0.03* (53330000/109600000) = 0.015. And the specific numbers were derived from the following graphs.
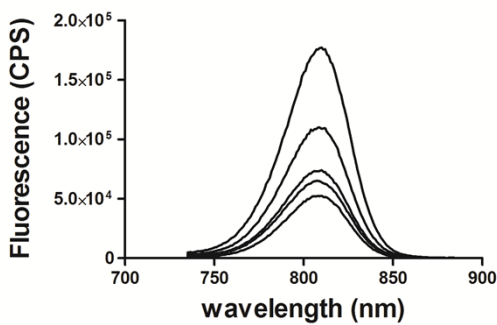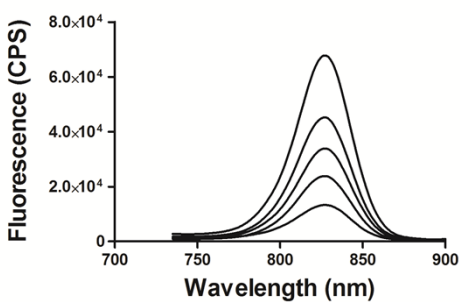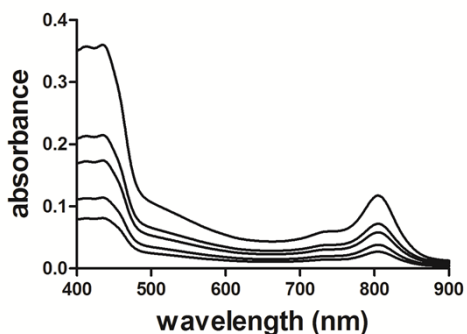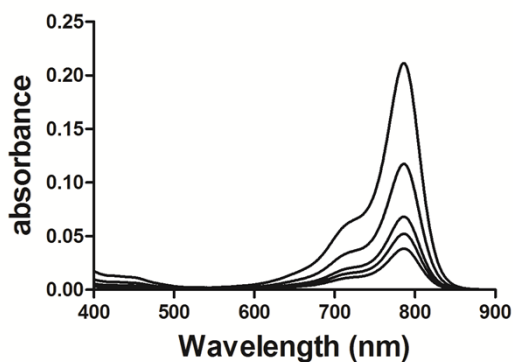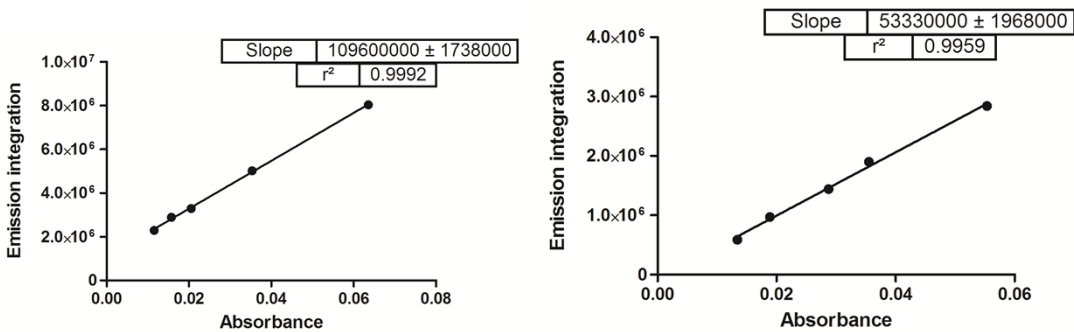
Figure S2: Absorption, emission spectra and fitting slop of ICG (left) and SiNP1_LS277 (right) for relative quantum yield measurement.

Lifetime measurement

Lifetime measurement is done in DAS 6 (decay analyst software, Horiba JobinYvon), the decay curve was fit with 2-exponential decay function, the goodness of the fit is represented by Chi^2.

Sample	T1	T1%	T2	T2%	χ^2
SiNP1_LS277	0.42 ns	97.2	17.2 ns	2.8	1.18
SiNP2_LS277	0.37 ns	95.7	20.1 ns	4.3	1.21