Electronic Supplementary Material (ESI) for RSC Advances.

Electronic Supplementary Information

Pluronic F127-Folic Acid Encapsulated Nanoparticles with Aggregation-Induced Emission Characteristics for Targeted Cellular Imaging

Hongguang Lu,*[a] Xiaowei Zhao,[a] Wenjing Tian,*[b] Qiusheng Wang[a] and Ji Shi[a]

[a] *Tianjin Key Laboratory of Organic Solar Cells and Photochemical Conversion, School of Chemistry & Chemical Engineering, Tianjin University of Technology, Tianjin 300384, P. R. China. E-mail: hglu@tjut.edu.cn;* [b] *State Key Laboratory of Supramolecular Structure and Materials, Jilin University, Changchun, 130012, P. R. China. E-mail: wjtian@jlu.edu.cn*.

Calculation of the number of AIE fluorophores in a F127-FA NP

Initially, 3.7 mg of BOSA, 2.7 mg of NPAPF and 200 mg of F127-FA were used to fabricate the F127-FA NPs. After THF evaporation, the suspension was adjusted to a final volume of 10 mL. Meanwhile, the UV absorption spectra of NPs suspension before and after filtration using 0.2 μm filter were recorded. The concentration of BOSA and NPAPF in the finally obtained NPs stock solution were then determined to be 0.35 $mg \cdot mL^{-1}$ and 0.26 $mg \cdot mL^{-1}$ by comparing the UV absorption, respectively. The concentration of BOSA and NAPF fluorophores in the stock solution are 6.0×10^{-4}M and 3.9×10^{-4}M, respectively.

After freeze-drying of 1 mL of the stock solution, 20.6 mg of powder was collected. This indicates that the weight concentration of NPs in stock solution is 20.6 $mg \cdot mL^{-1}$. The average diameter of these NPs in aqueous solutions is 30.6 nm, as determined by DLS. As the NP in water suspension is stable, the density of NPs in suspension should be close to that of water. We assume the density of NPs is ~1 $g \cdot mL^{-1}$, so the concentration of NPs in stock suspension can be calculated from the following equation:

Total number of NPs in 1 mL suspension

$$= \frac{Total\ Volume\ of\ NPs}{Average Volume\ of\ Each\ NP} = \frac{\frac{20.6\ mg}{1000\ mg \cdot mL^{-1}}}{\frac{4}{3}\pi \times (15.3 \times 10^{-7})^3 mL} = 1.37 \times 10^{15}$$

Finally, the number of BOSA molecules concentration in a F127-FA NP

$$= \frac{6.0 \times 10^{-4} \text{mol} \cdot \text{L}^{-1} \times 6.02 \times 10^{23} \text{mol}^{-1}}{1.37 \times 10^{18} \text{L}^{-1}} = 264$$

The number of NPAPF molecules in a F127-FA NP is 171.

Table S1. Size of polymeric NPs with different BOSA or NPAPF concentrations

Fluorophores loading concentration [a] [mg/mL]	Size [b] [nm]	
	BOSA	NPAPF
0.05	20.5	21.8
0.1	22.8	22.9
0.2	24.2	25.3
0.3	24.7	24.9
0.4	25.6	26.2

[a] The loading concentration of F127-FA is 20 mg/mL; [b] Average diameter of NPs determined by dynamic light scattering.

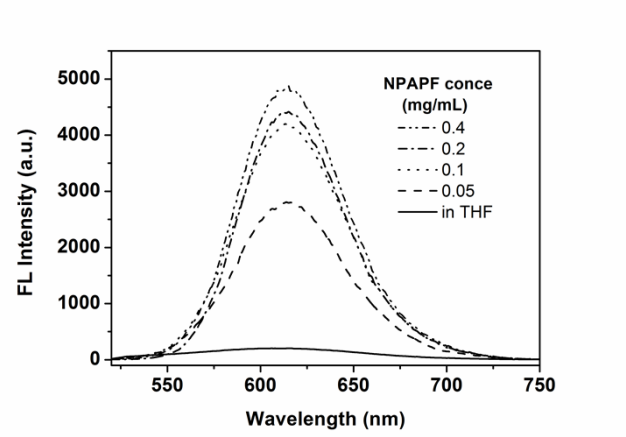

Figure S1. Fluorescence emission spectra of NPAPF in THF solution and NPAPF loaded F127-FA NPs with various NPAPF loading concentrations.

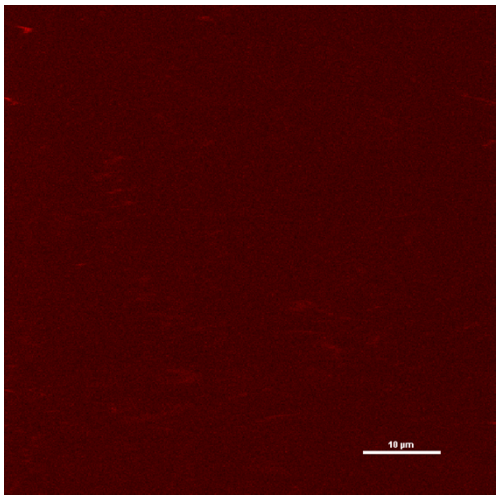

Figure S2. CLSM image of BOSA/NPAPF co-loaded F127-FA NPs with the BOSA/NPAPF molar ratio of 1.5:1 in aqueous solution. The fluorescence signal is collected above 650 nm upon excitation at 405 nm.