

Supporting Information

for

An Enzyme-Responsive Protein/Polysaccharide Supramolecular Nanoparticle

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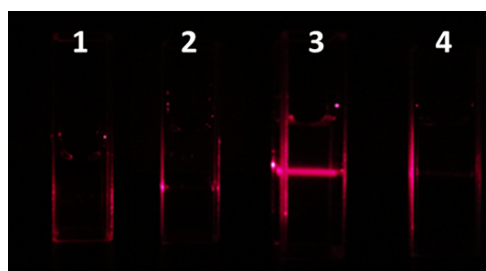


Figure S1. Tyndall effect of free SCD (1), free protamine (2), SCD-protamine(3), SCD-arginine; [SCD] = 0.027 mM, [protamine] = 20 $\mu\text{g/mL}$, and [arginine] = 0.25 mM

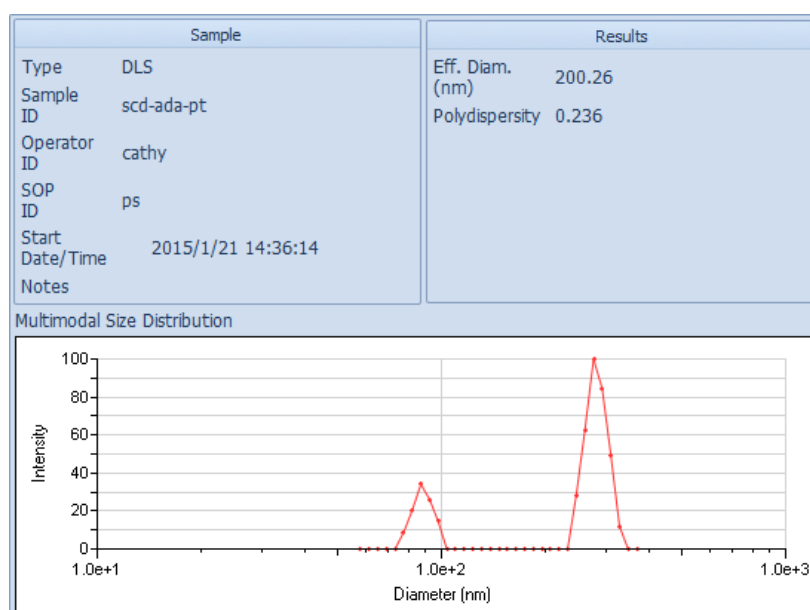


Figure S2. DLS result of protamine/SCD/1-adamantanol nanoparticle, [SCD] = 0.027 mM, [1-adamantanol] = 0.04 mM, [protamine] = 20 $\mu\text{g/mL}$.

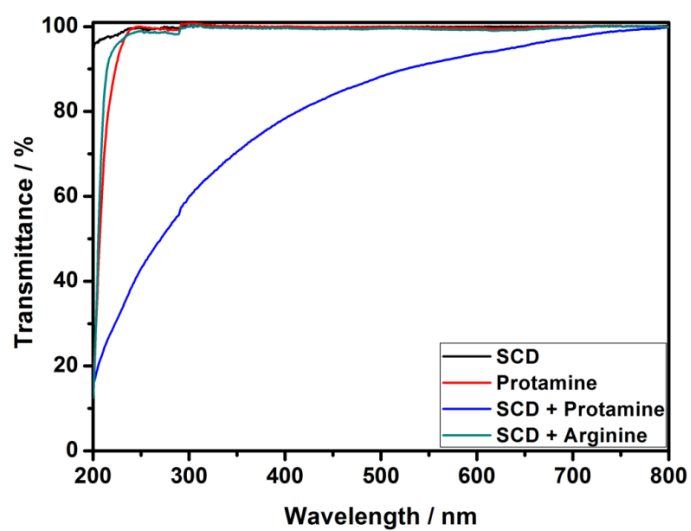


Figure S3. Optical transmittance of SCD, protamine, protamine/SCD, and arginine/SCD at 25 °C in water; [SCD] = 0.027 mM, [protamine] = 20 μ g/mL, and [arginine] = 0.25 mM.

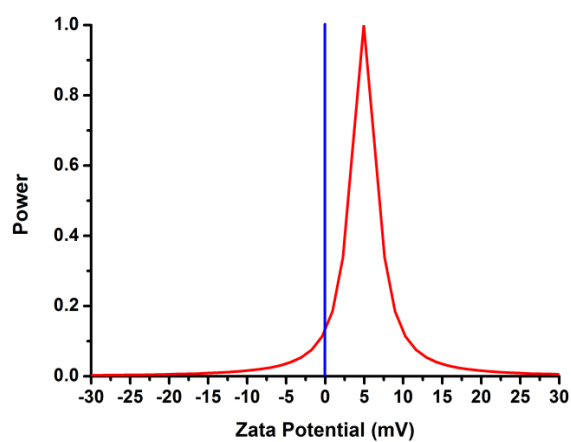


Figure S4. Zeta potential of protamine/SCD assembly at 25 °C in water; [SCD] = 0.027 mM, [protamine] = 20 μ g/mL.

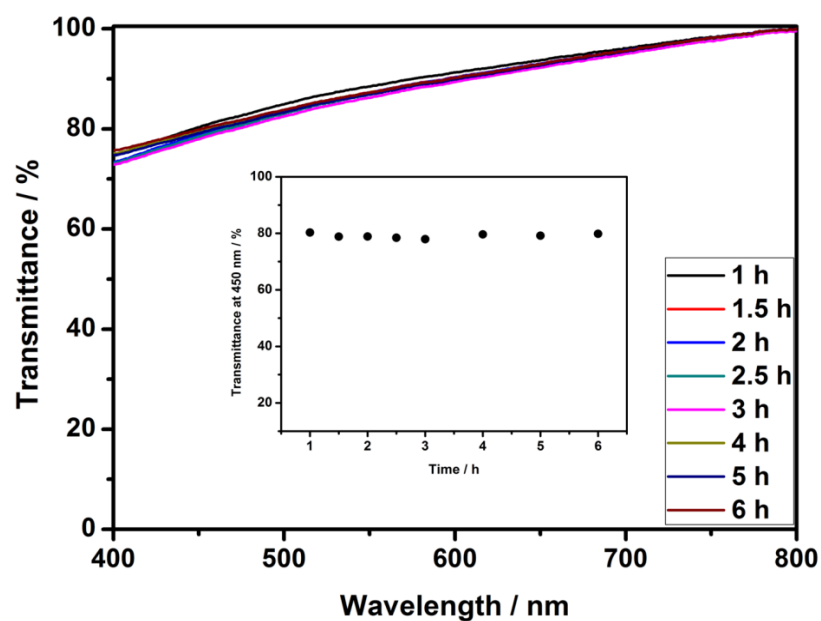
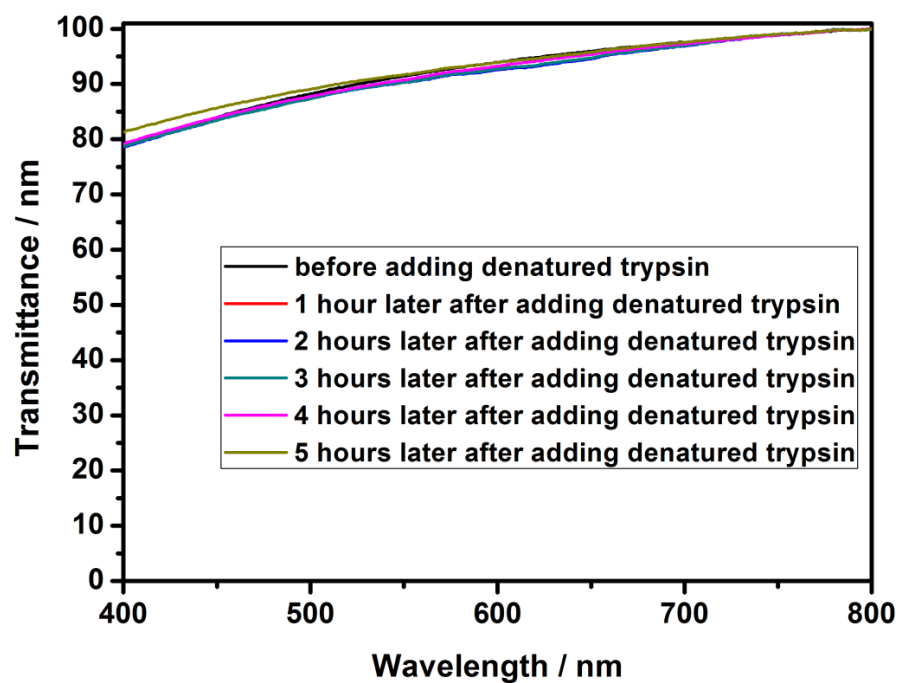
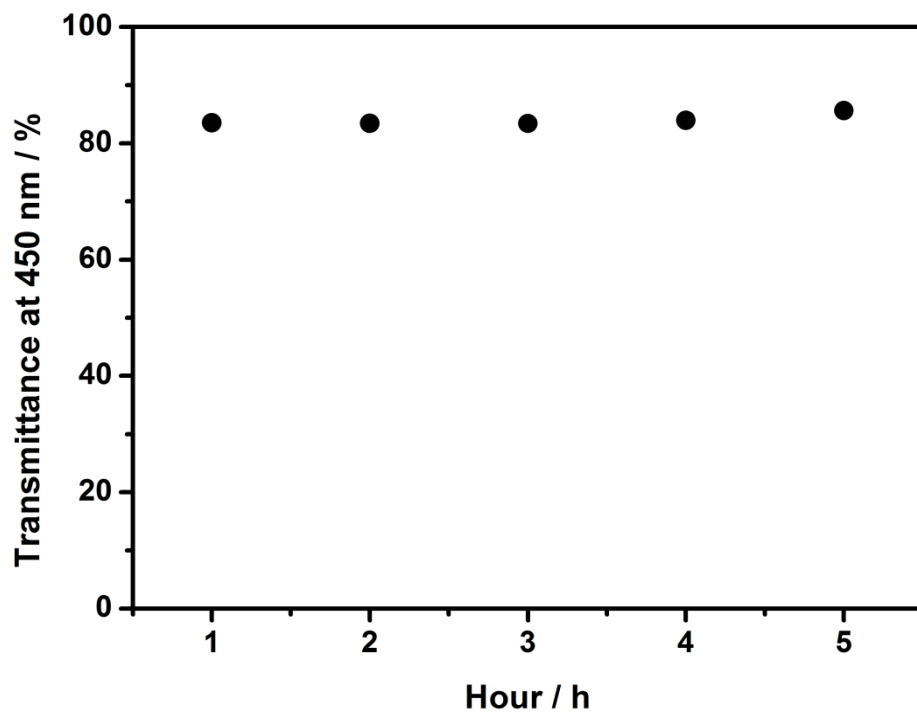


Figure S5. Optical transmittance of protamine/SCD assembly at different time within 6 h at 25 °C in water. Inset: dependence of the optical transmittance at 450 nm on time. [SCD] = 0.027 mM, [protamine] = 20 μ g/mL.

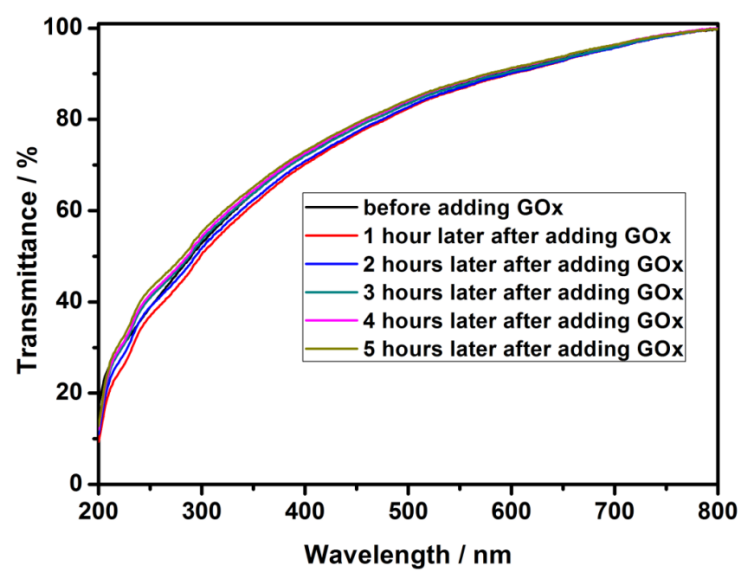


(a)

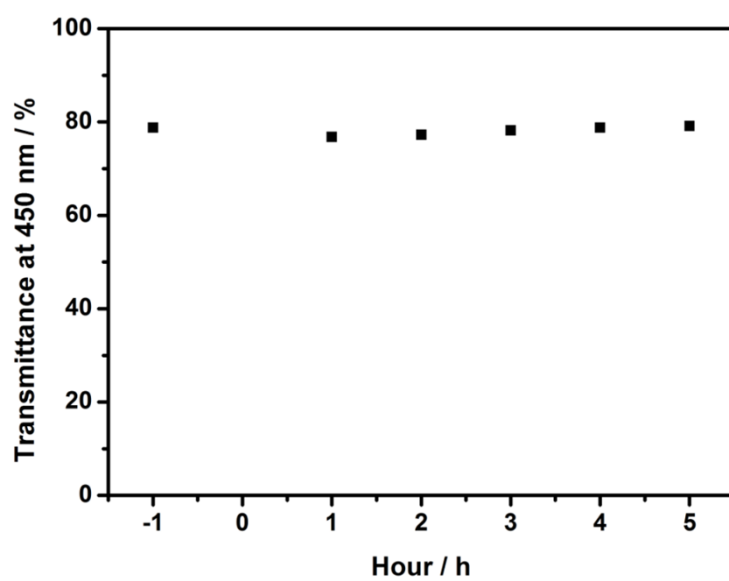


(b)

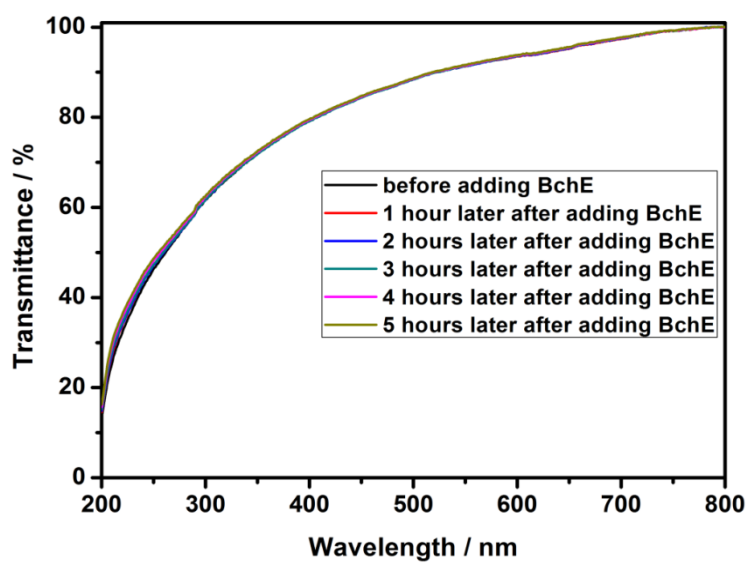
Figure S6. (a) Optical transmittance of protamine/SCD assembly at different time within 5 h after addition of 0.2 mg/mL denatured trypsin in water. (b) Dependence of the optical transmittance of protamine/SCD assembly at 450 nm on time after addition of 0.2 mg/mL denatured trypsin in water. [SCD] = 0.027 mM, [protamine] = 20 μ g/mL.



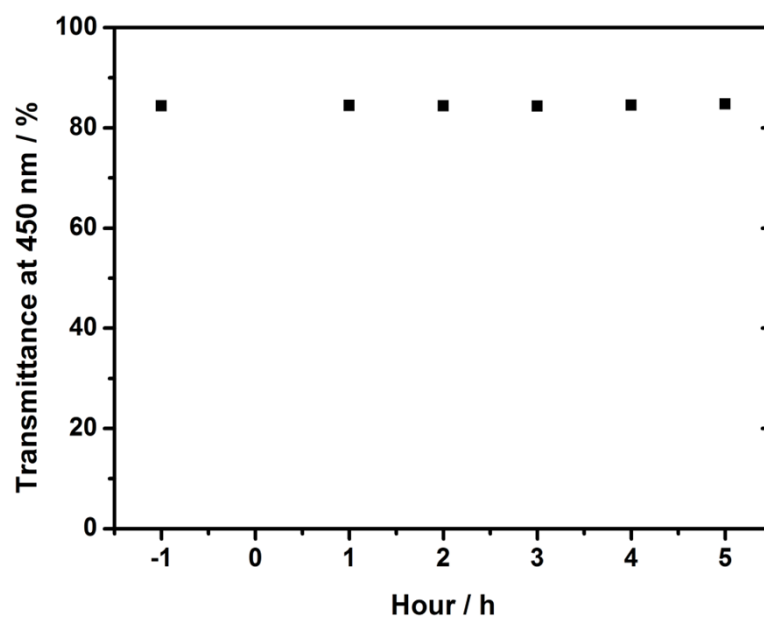
(a)



(b)



(c)



(d)

Figure S7. Optical transmittance of protamine/SCD assembly at different time within 5 h after addition of 0.5 U/mL GOx (a), BChE (c) in water, respectively. Dependence of the optical transmittance of protamine/SCD assembly at 450 nm on time after

addition of 0.5 U/mL GOx (a), BChE (c) in water. [SCD] = 0.027 mM, [protamine] = 20 $\mu\text{g/mL}$.

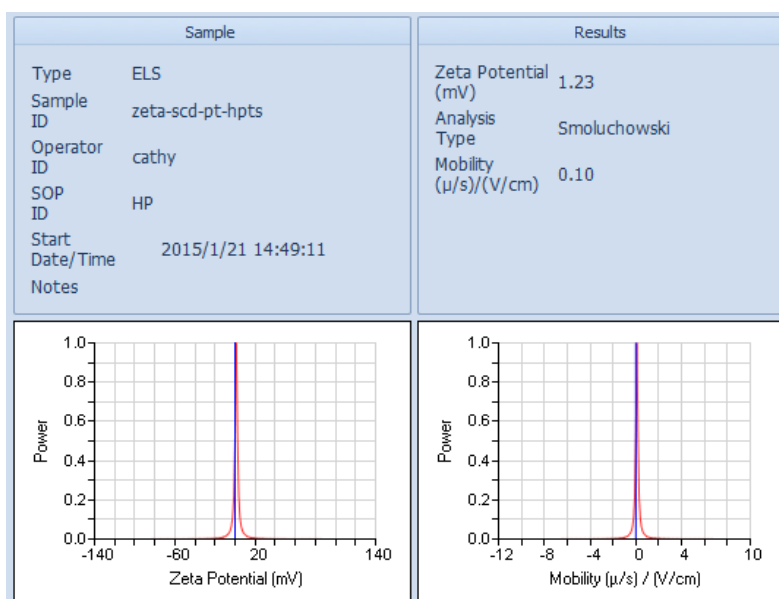
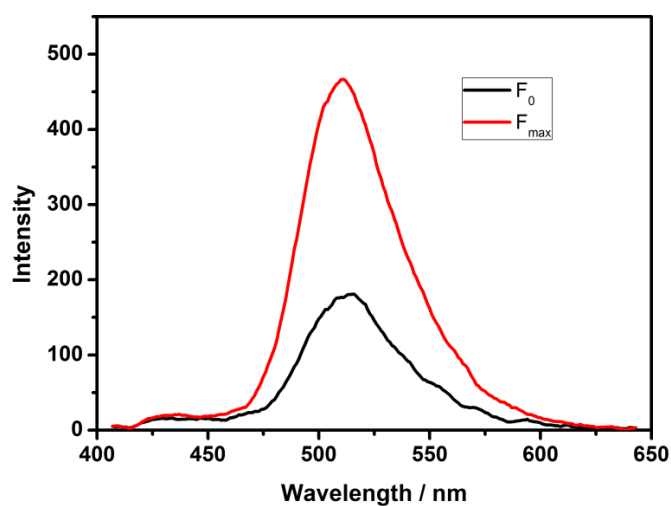
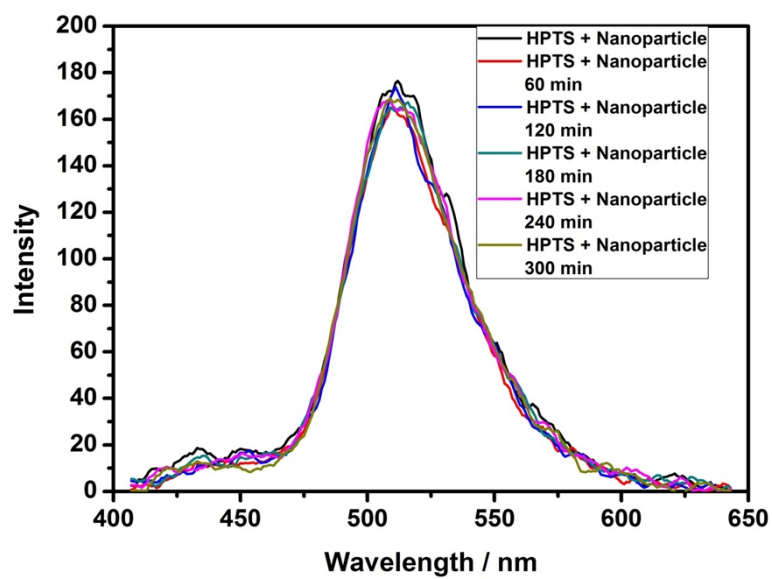


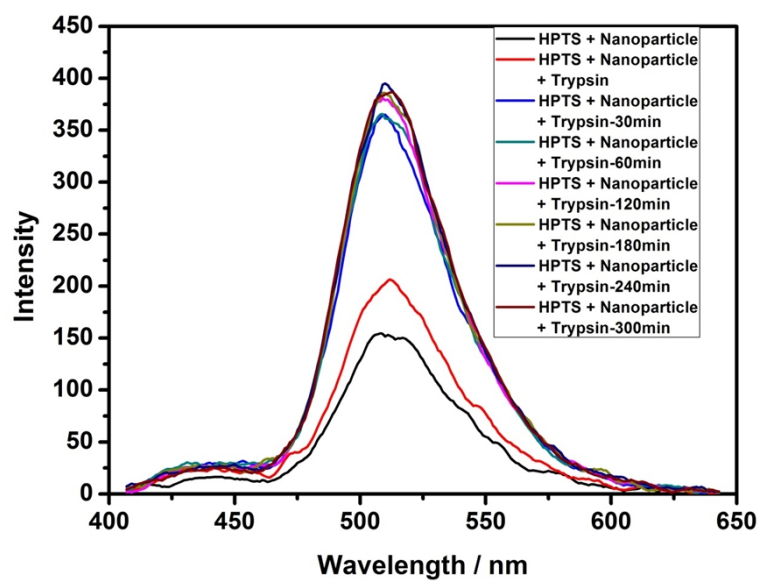
Figure S8. Zeta Potential of HPTS-loaded nanoparticle. [SCD] = 0.027 mM, [protamine] = 20 $\mu\text{g/mL}$, [HPTS] = 0.01 mM.



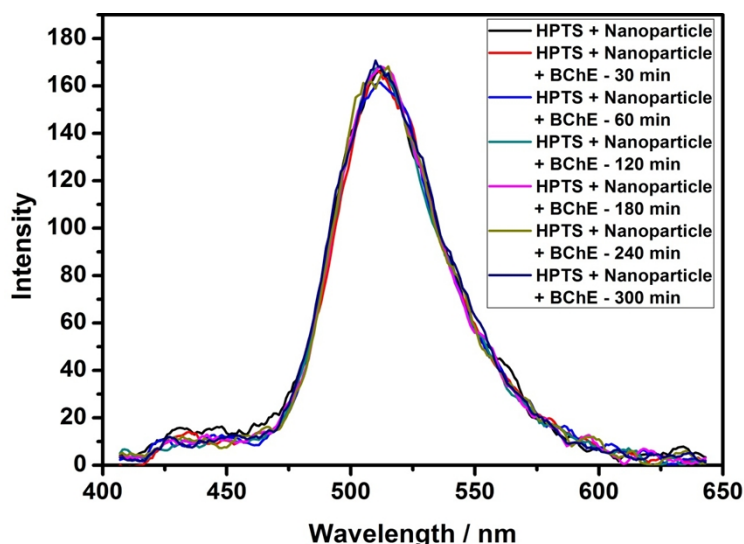
(a)



(b)



(c)



(d)

Figure S9. (a) Fluorescence emission spectra of HPTS-loaded nanoparticle (F_0), and the overall fluorescence intensity (the free HPTS water solution, the intensity of which is considered to be $F_{\max}$). Fluorescence emission spectra of HPTS-loaded nanoparticle at different time within 5 h in the absence (b) and in the presence (c) of trypsin, [trypsin] = 0.2 mg/mL. (d) Fluorescence emission spectra of HPTS-loaded nanoparticle at different time within 5 h in the presence of BChE, [BChE] = 0.5 U/mL. [SCD] = 0.027 mM, [protamine] = 20 μ g/mL, and [HPTS] = 0.01 mM.

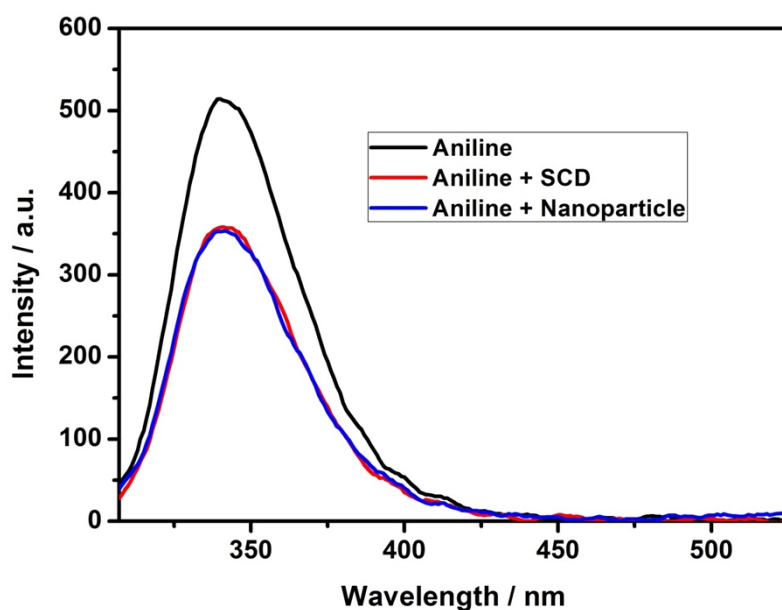


Figure S10. Fluorescence emission spectra of aniline before and after the addition of SCD or protamine/SCD nanoparticle ([aniline] = 0.027 mM, [SCD] = 0.027 mM, [protamine] = 20 $\mu\text{g/mL}$).