Supporting Information

An In-depth Kinetics Study of Chemical Modified Human Serum Albumin Aggregation and Fibrillation

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S1. Experimental details for Synthesis of NAC-CdTe QDs

The aqueous NaHTe solution was prepared by mixing $NaBH_4$ (50 mg) with Te (50 mg) at a molar ratio of 2:1 in DI water (Millipore, USA) in the presence of N_2 at room temperature. And then, $CdCl_2$ (0.1mmol/L) and NAC (0.17 mmol/L) were mixed in 50 mL DI water stirring at room temperature for 30 min with N_2 saturated. The pH of Cd precursor solution was adjusted to pH 8.7 with NaOH. Subsequently, the freshly prepared NaHTe solution was added to the N_2 saturated precursor solution with molar ratio of Cd/NAC/Te at 1:1.7:0.2. [1] After about 20-minute reaction for vigorous stirring at room temperature, the reaction solution was transferred into 120°C oil bath. The reaction system was always in the atmosphere of N_2. Finally, the reaction solution was purified using isopropanol and then vacuum drying. Redissolved and dialysised when used. And the solution concentration was determined using empirical formula after UV spectroscopy.

References

(1) Zou L, Gu Z, Zhang N, et al. (2008)*Journal of Materials Chemistry*, *18*: 2807-2815.

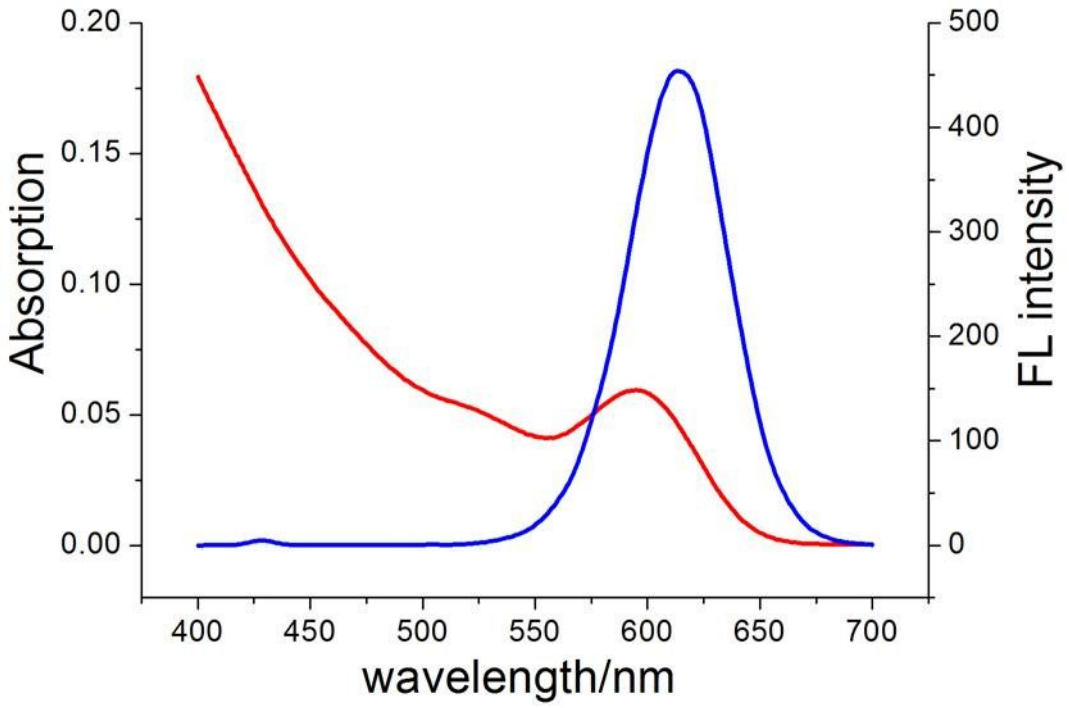

Figure S1. Spectrum properties of water soluble NAC-capped CdTe QDs determined by UV-vis spectra (red line) and the fluorescence spectra (blue line) at the same concentration repectively.

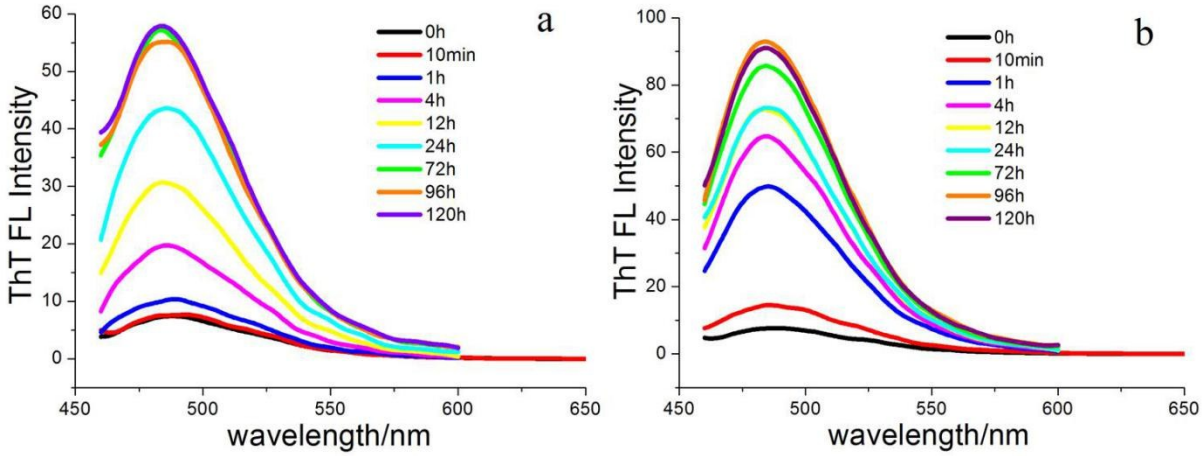

Figure S2. The degrees of proteins fibrillation detected by the fluorescence spectra of ThT (Ex = 450 nm) with an emission wavelength at about 484 nm. nHSA (a) and cHSA (b) reach its maximum intensity at 96 h.

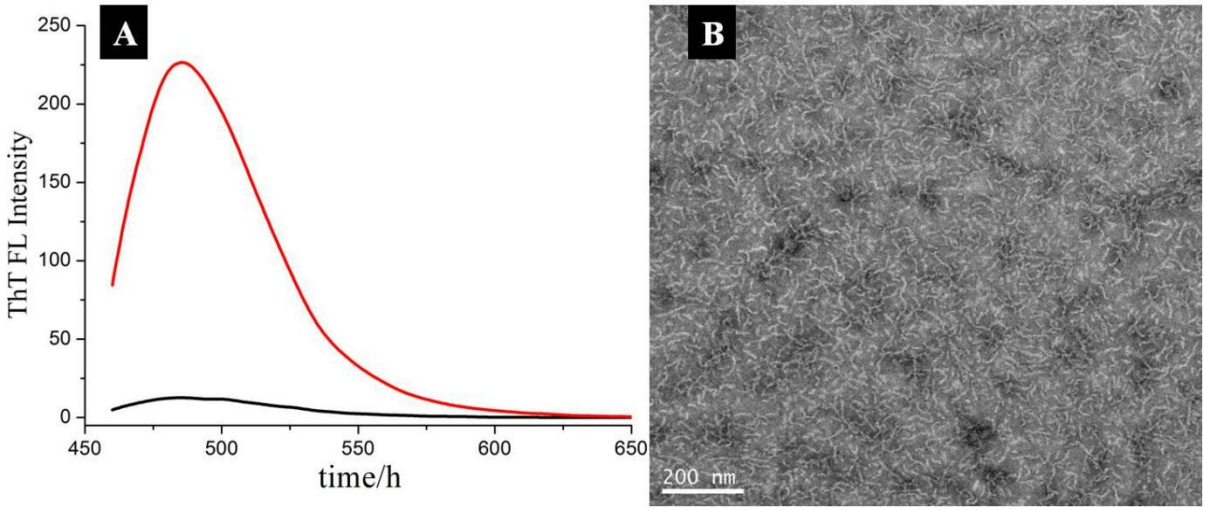

Figure S3. aHSA fibrillation study incubated at 70 °C, pH 7.4. a) ThT binding assay of aHSA at 0 h (black line) and 96 h (red line); b) Fibrils morphology of aHSA at the final incubation time of 96 h detected by TEM, negative stained by 2%phosphotungstic acid.

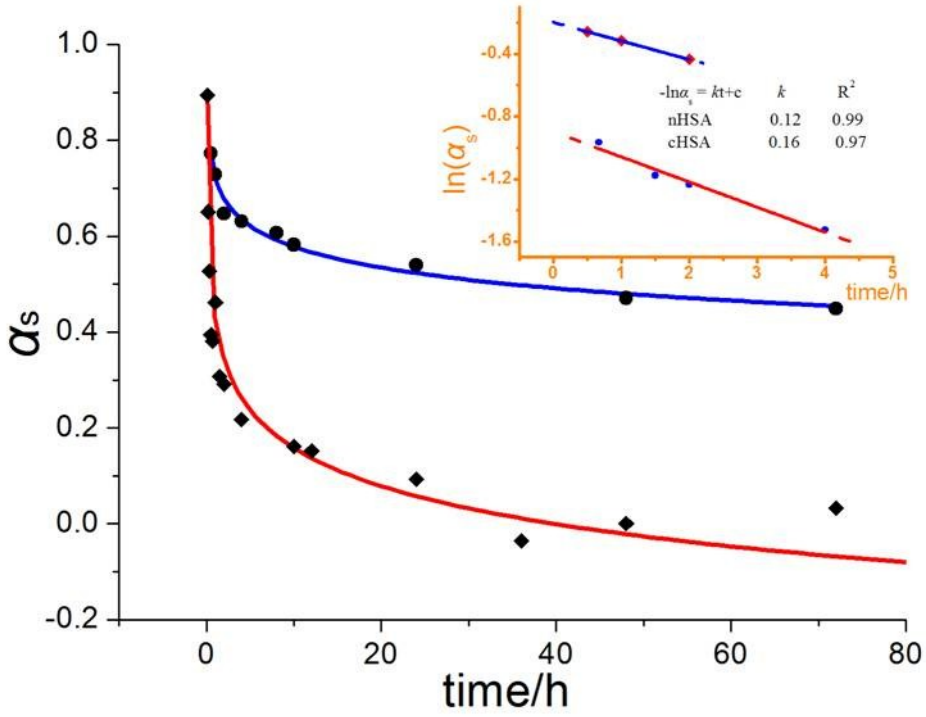

Figure S4. Curves for the partial of folded HSA proteins changes as time extended for nHSA (blue) and cHSA (red). And the insert corresponds to the kinetic plots for the first few hours of the aggregation.

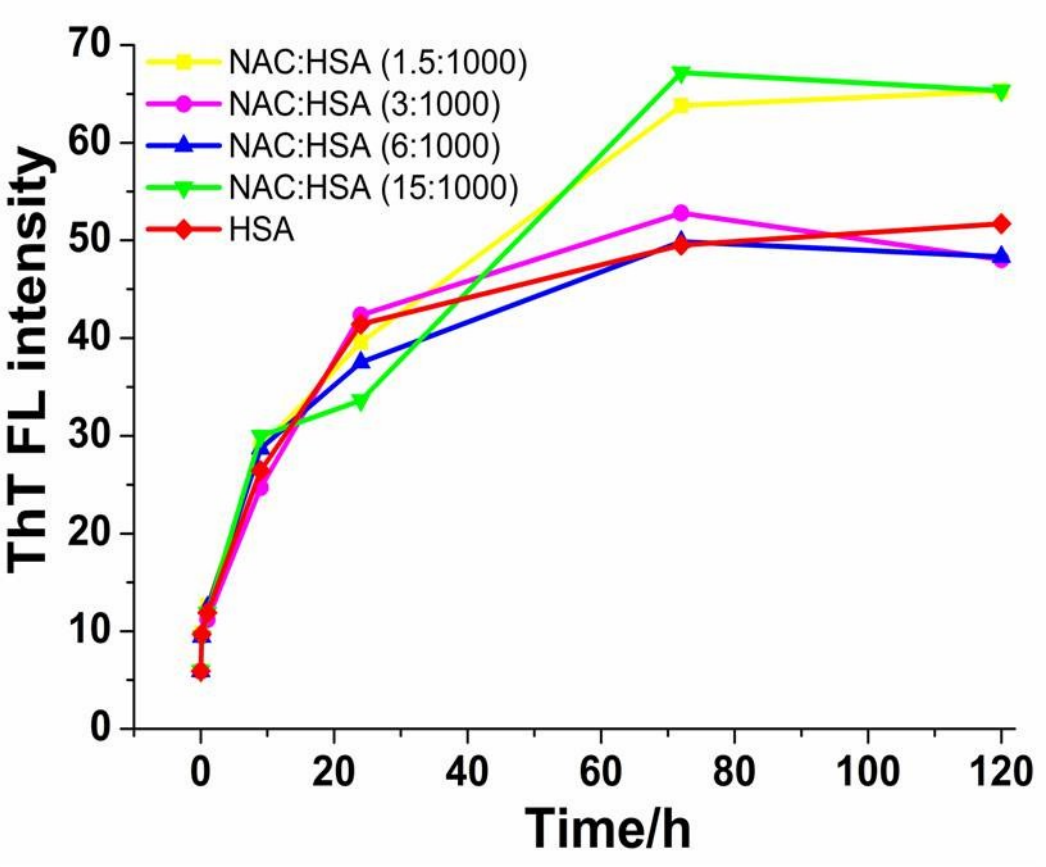

Figure S5. ThT Fluorescence intensity of nHSA incubated with NAC at various concentrations at 60 °C at pH 7.4.