Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Supplementary Information

Inhibition of hen egg white lysozyme fibrillation by self-assembled nanostructured lysozyme and graphene oxide conjugate

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1. Preparation of BSA nanoparticles

BSA nanoparticles (nBSA) were synthesized using a desolvation method with minor modifications [1]. 2 mg/mL of BSA powder was added to milli-Q water and the mixture was magnetically stirred at 500 rpm until the protein powder was totally dissolved. The pH of the solution was adjusted to 9 with 0.1 M NaOH. A desolvating agent, ethanol was added dropwise at a rate of 1 ml/min into the BSA solutions until the solutions became turbid. After that 0.1 % v/v of glutaraldehyde was added to achieve intra-particle cross-linking. The solution was stirred overnight at 500 rpm. The solution was centrifuged at 20,000 g for 10 min and repeated the washing procedure for five cycles to remove the excess glutaraldehyde. The nBSA particles were collected and re-dispersed in milli-Q water and preserved at 4ºC for experimental use.

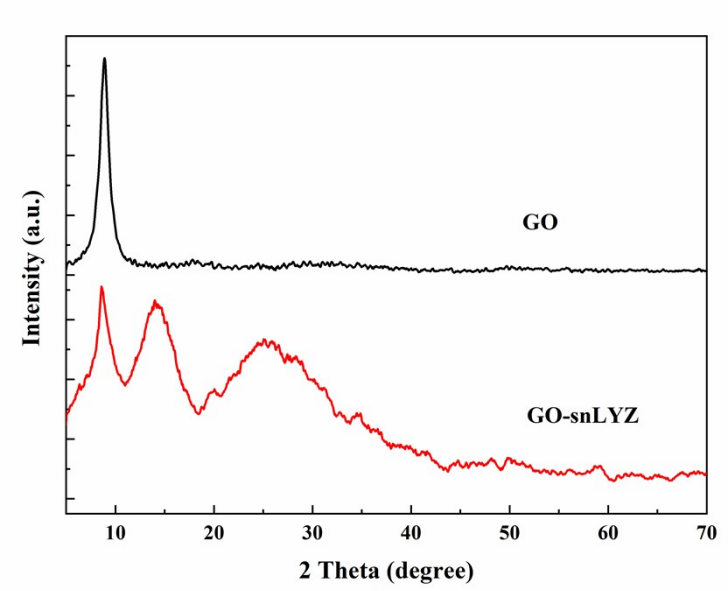

Figure S1. XRD spectra of GO and GO-snLYZ nanoconjugate

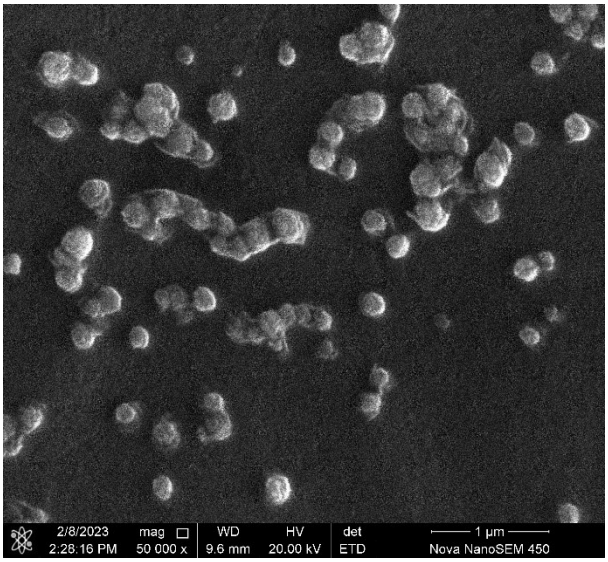

Figure S2. FESEM image of BSA nanoparticles

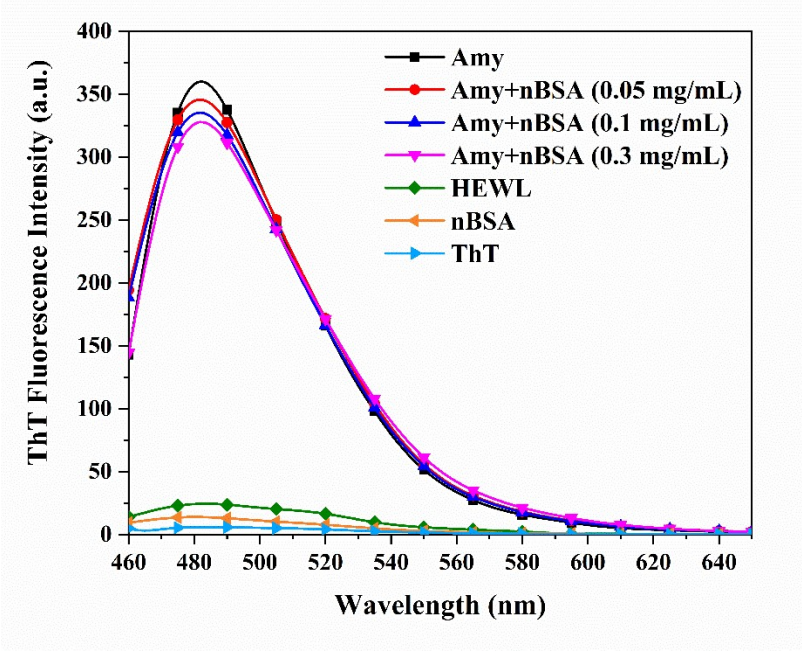

Figure S3. ThT fluorescence spectra of HEWL amyloid samples prepared in the presence of nBSA particles.

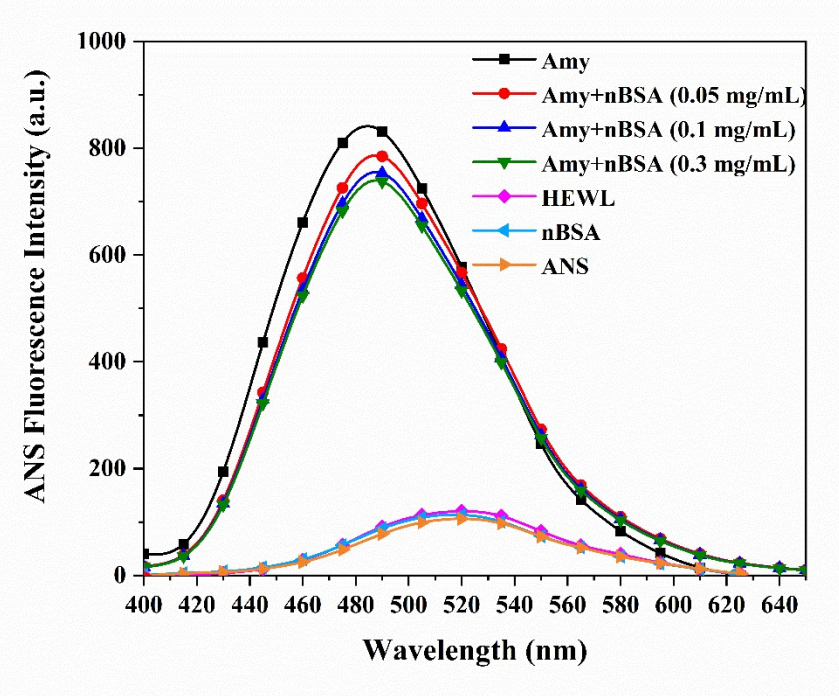

Figure S4. ANS fluorescence spectra of HEWL amyloid samples prepared in the presence of nBSA particles.

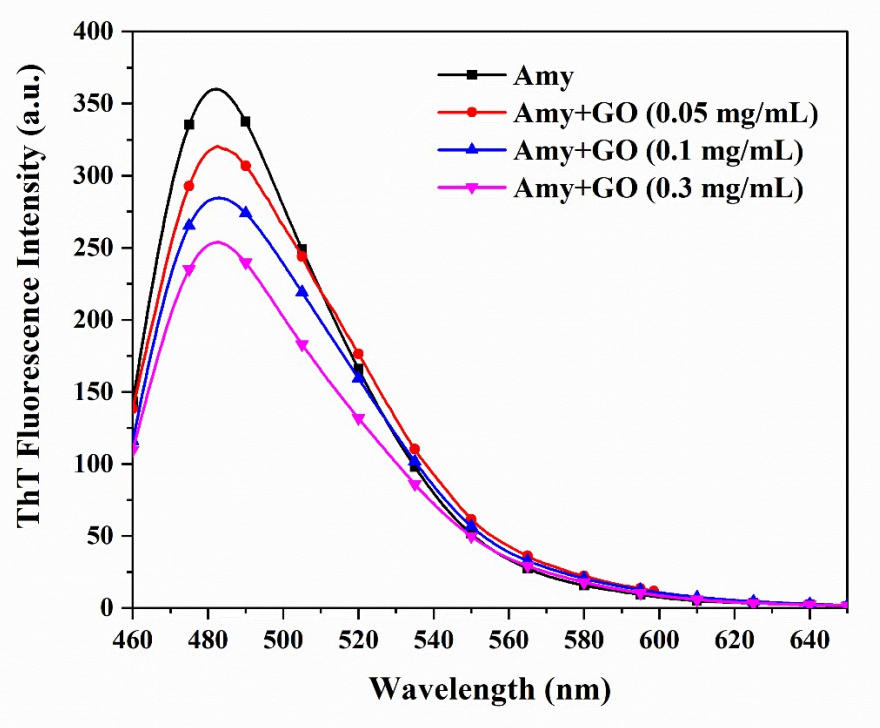

Figure S5. ThT fluorescence spectra of HEWL amyloid samples prepared in the presence of GO.

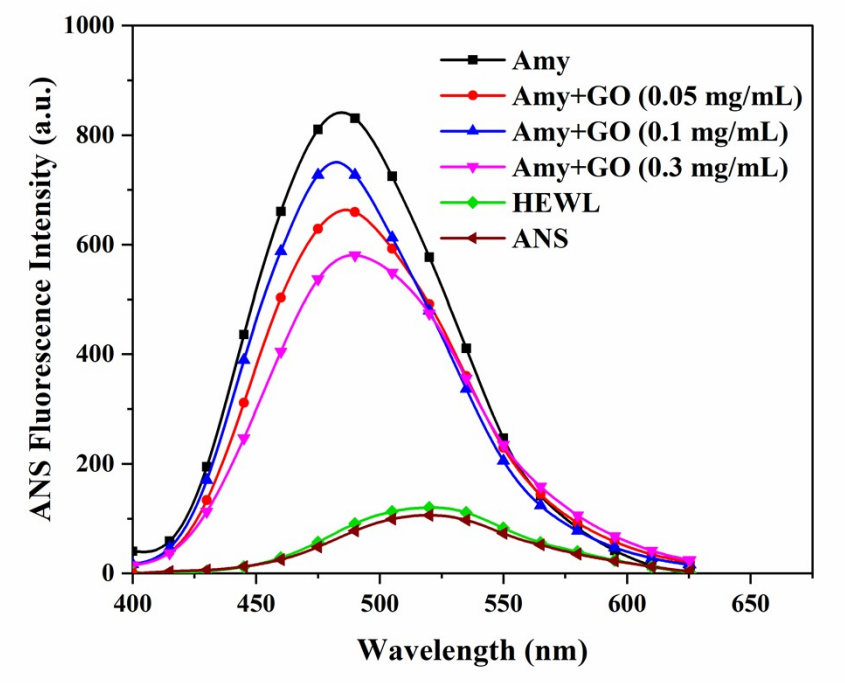

Figure S6. ANS fluorescence spectra of HEWL amyloid samples prepared in the presence of GO.

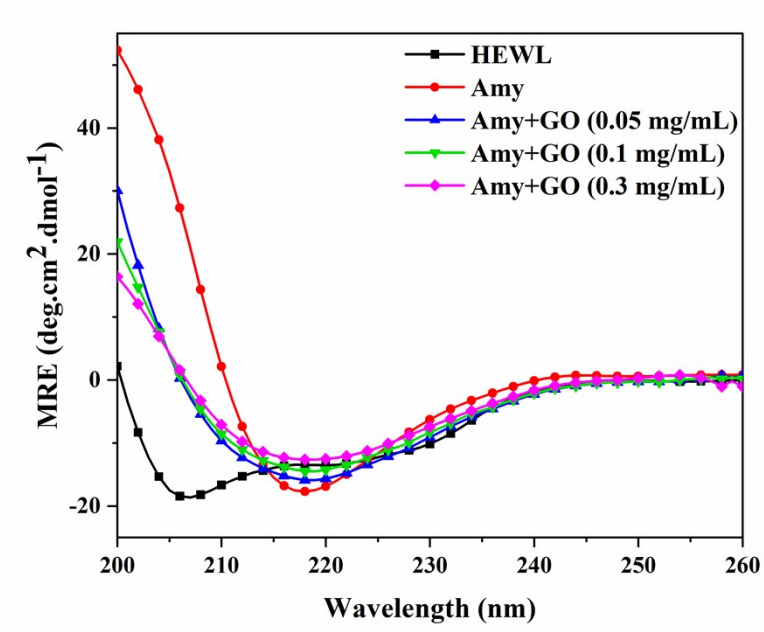

Figure S7. Far UV-CD spectra of HEWL amyloid samples prepared in the presence of GO.

Table S1.

Sample	α-helix (%)	β-sheet (%)	Unordered structure (%)
Amy+GO (0.05 mg/mL)	12.2	60.4	27.4
Amy+GO (0.1 mg/mL)	12.7	58.4	28.9
Amy+GO (0.3 mg/mL)	13.8	53.6	32.6

References

1. Jun JY, Nguyen HH, Paik S-Y-R, Chun HS, Kang B-C, Ko S. Preparation of size-controlled bovine serum albumin (BSA) nanoparticles by a modified desolvation method. *Food Chem*. 2011;127(4):1892-1898. doi:https://doi.org/10.1016/j.foodchem.2011.02.040