Supporting information to

Graphene oxide sheets and quantum dots inhibit α-synuclein amyloid formation by different mechanisms

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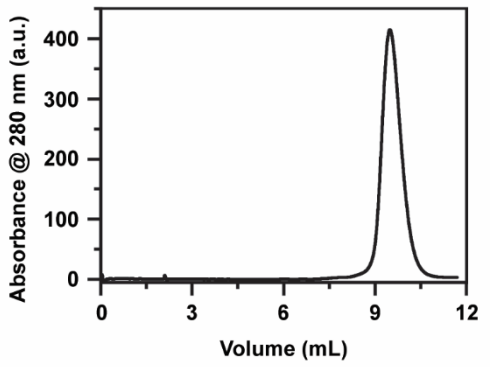
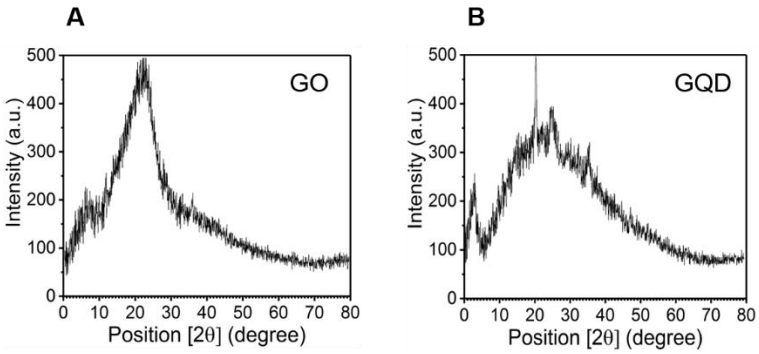
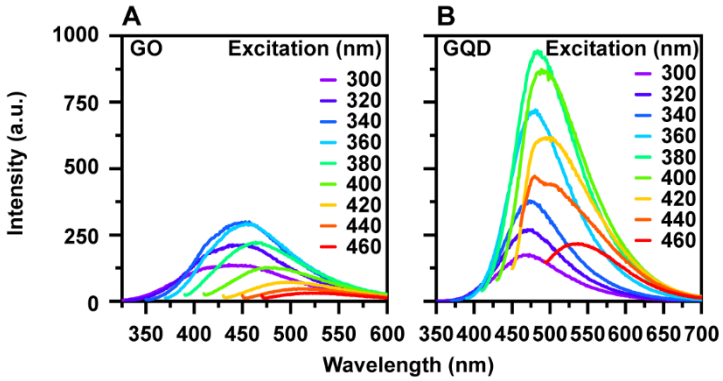
SUPPORTING FIGURES



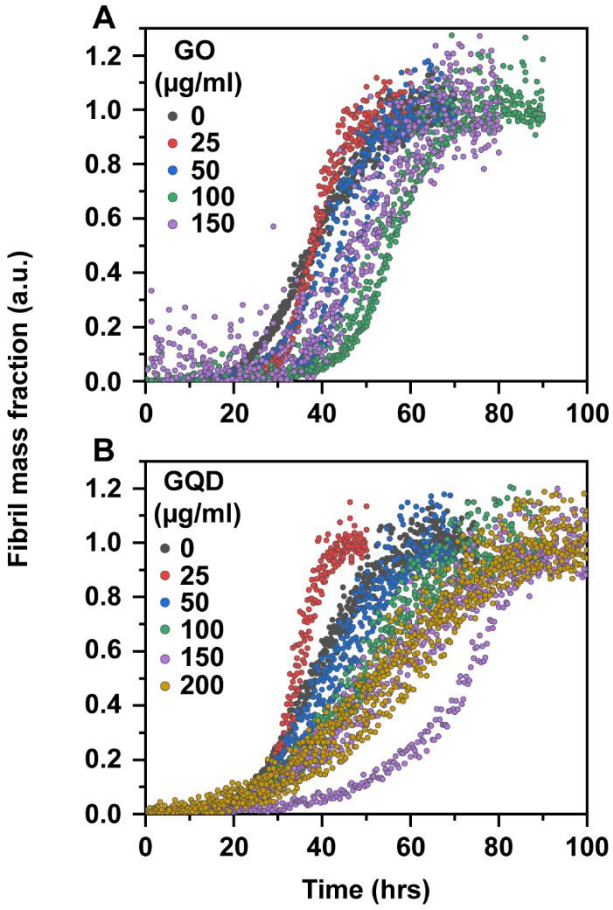
Supporting figure S1. Chromatogram showing SEC preparation of monomeric α-synuclein from recombinant stocks. 4 mg/mL α-synuclein dissolved in 25 mM tris buffer, pH 7.6 was injected onto a Superdex 75 GL 10/300 SEC column and eluted with 0.8 ml/min 20 mM Tris buffer, pH 7.4. At these conditions α-synuclein elutes at approximately 9-10 mL at a concentration of 110 µM.



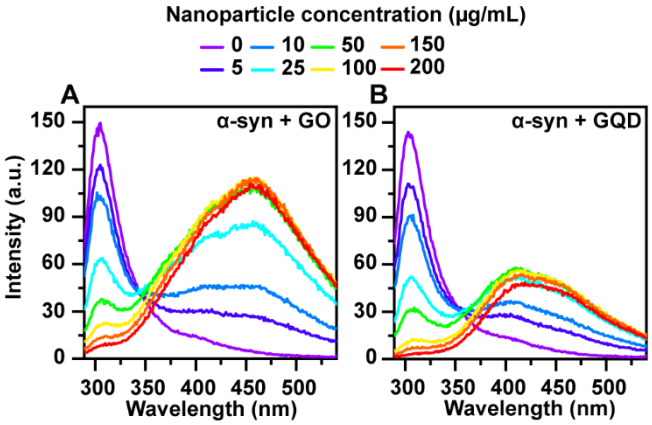
Supporting figure S2. X-ray powder diffraction (XRD) patterns of **(A)** GO and **(B)** GQD nanoparticles, measured using a X'PertPro Philips diffractometer using Cu Kα radiation (λ=1.5406Å) in the 2Θ range 0-80°.



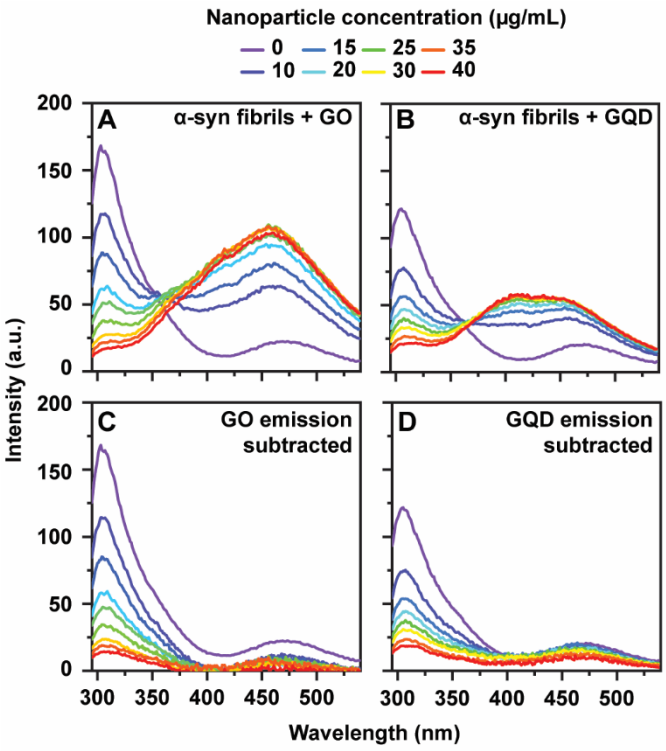
Supporting figure S3. Fluorescence emission spectra of **(A)** GO and **(B)** GQD nanoparticles at different excitation wavelengths.



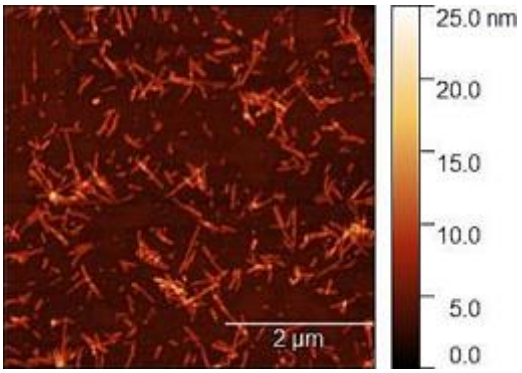
Supporting figure S4. Normalised kinetic profiles of 50 μM α-synuclein aggregating in presence of increasing concentrations of **(A)** graphene oxide (GO), and **(B)** graphene quantum dots (GQD).



Supporting figure S5. (A, B) Unsubtracted fluorescence emission spectrum from 50 µM α-synuclein with increasing amounts of **(A)** GO, and **(B)** GQD. The tyrosine emission at 310 nm is increasingly quenched by addition of nanoparticles.



Supporting figure S6. (A, B) Fluorescence emission spectrum from 50 μM α-synuclein with increasing amounts of **(A)** GO, and **(B)** GQD. The tyrosine emission at 310 nm is increasingly quenched by addition of nanoparticles. **(C, D)** Same spectra as in **(A, B)** but with the emission from pure GO **(C)** and pure GQD **(D)** subtracted.



Supporting figure S7. AFM image of pre-formed α-syn fibrils (50 µM) recorded 5 hours after the addition of 200 µg/ml of GO.