

# Supporting Information

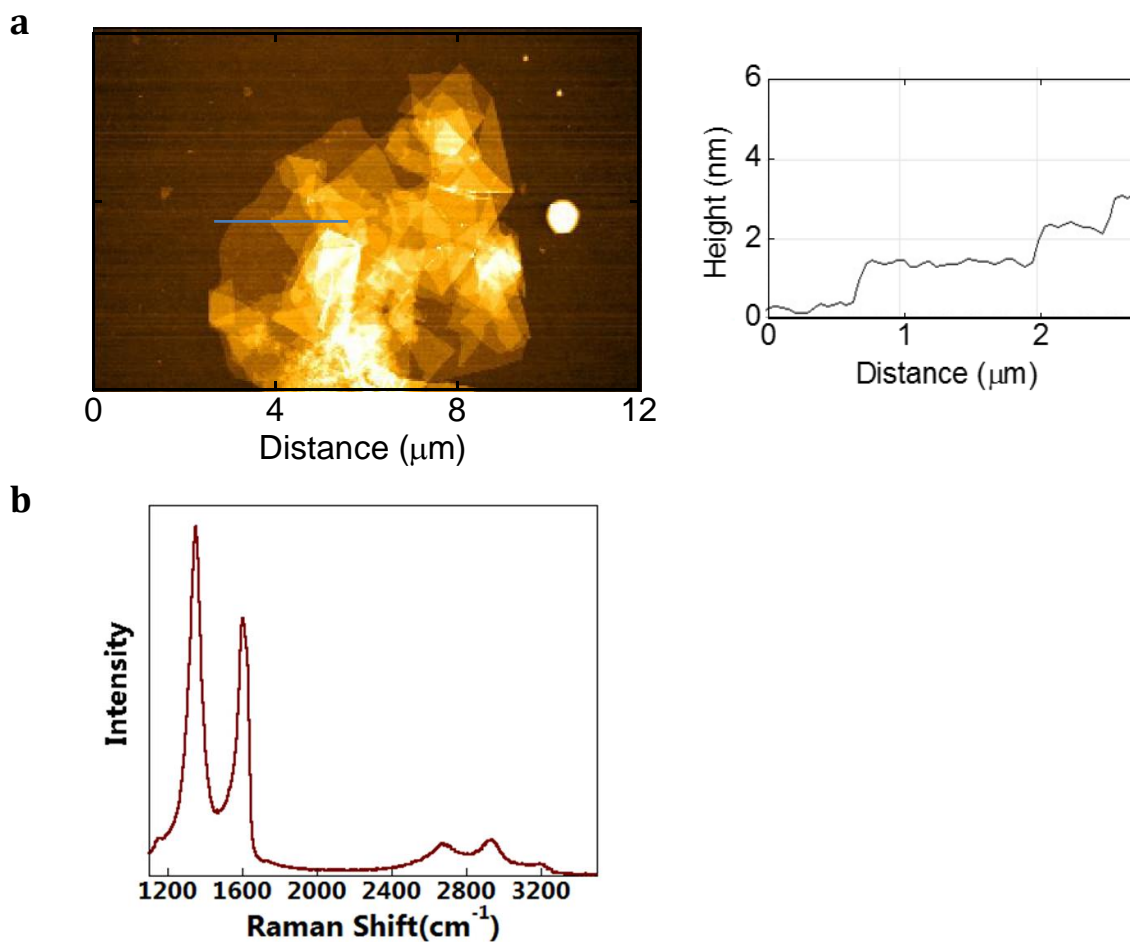
## Direct Observations of Graphene Dispersed in Solution by Twilight Fluorescence Microscopy

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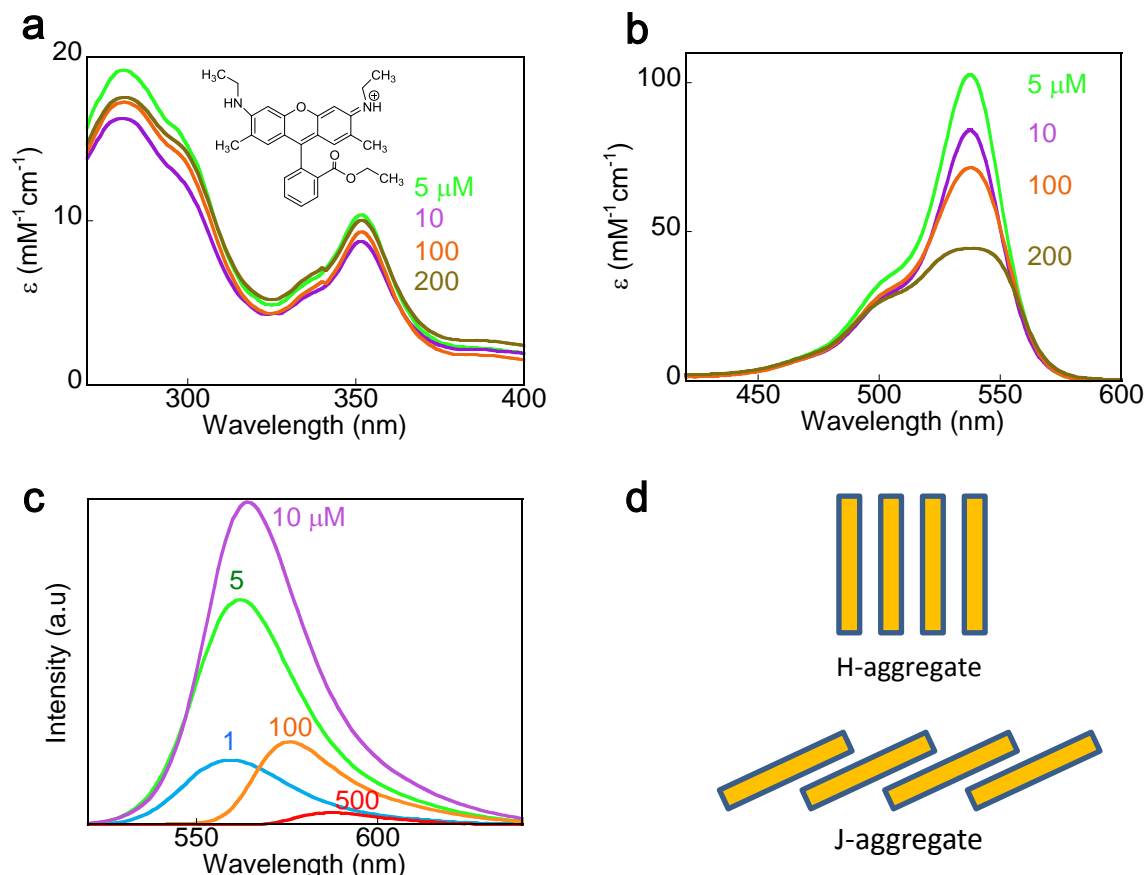
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## 1. Characterization of graphene oxide.



**Figure S1.** Morphology and bonding structures of GO used in the experiment. (a) AFM image of GO on SiO<sub>2</sub>/Si in air and a height profile across a blue line in the image. (b) Raman spectrum of GO on SiO<sub>2</sub>/Si in air, operated with a 532 nm laser. D-band and G-band appearing about 1350 and 1600 cm<sup>-1</sup>, respectively, show the presence of oxides and carbon hexagonal structures.

## 2. Fluorophore properties of Rhodamin-6G in NMP at high concentrations.



**Figure S2.** Spectral characteristics of Rh-6G in NMP at high concentrations. The apparent molar absorption coefficient  $\epsilon$  at (a) UV and (b) visible regions, as well as (c) fluorescence intensity of Rh-6G in NMP at various concentrations, measured by the spectrophotometers. The absorbance was controlled to stay below 0.8 by adjusting the cell length. No concentration dependence was observed in the UV absorption, indicating no chemical change. The visible absorption spectra broaden due to the emergence of a new red-shifted peak around 545 nm (with a shoulder peak around 510 nm) at higher concentrations. There is a clear red-shift of the fluorescence peak as the concentration is increased. Varying intensity cannot be explained by IFE alone, since the absorption coefficient decreases continuously as the concentration is increased. (d) Aggregation models showing molecular orientations.