

Electronic Supplementary Information (ESI)

Supramolecular Polymer Networks from Hybrid between Graphene Oxide and Per-6-Amino- β -Cyclodextrin

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Experimental Section

Materials. Graphite oxide (GO) was prepared from natural graphite flakes (325 mesh, Alfa-Aesar) by Hummer's method.¹ per-6-Amino- β -cyclodextrin (PACD) was synthesized according to the previous literature.²

Measurements. The ¹H NMR spectra were recorded at 500 MHz with a JEOL-ECA 500 spectrometer. Fluorescence spectra were recorded on a Hitachi F-2500 fluorescence spectrometer at 25 °C. UV-Vis absorption spectra were recorded with a JASCO V-670 spectrophotometer at 25 °C. For fluorescence and UV-Vis measurements, one centimeter quartz cuvetts were used. Dynamic light scattering (DLS) measurements were carried out on Beckman Coulter N5 Submicron Particle Size Analyzer at 20 °C. The FT-IR spectra were obtained using a JASCO FT-IR460 plus infrared spectrometer.

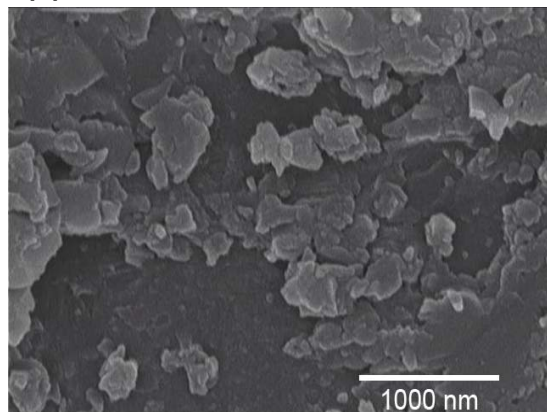
Synthesis of GO-PACD Hybrid. GO (2 mg) was dissolved in aqueous solution (5 mL). To the mixture, PACD (0.001-0.5 eq. to GO) were added and stirred at 25 °C for 10 minutes.

References

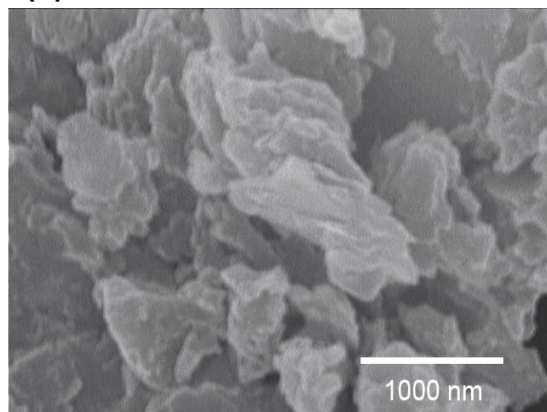
- 1) W. Hummers and R. Offeman, *J. Am. Chem. Soc.*, 1958, **80**, 1339.
- 2) P. R. Ashton, R. Königer and J. F. Stoddart, *J. Org. Chem.*, 1996, **61**, 903.

SEM Images of GO-PACD Hybrid

(a) PACD/GO = 0.001



(b) PACD/GO = 0.1



(c) PACD/GO = 0.5

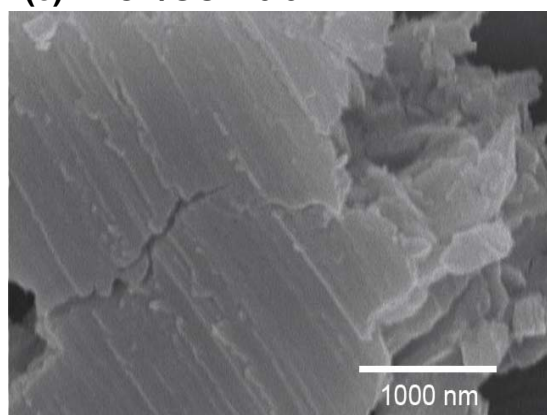


Figure 1S. SEM images of **GO-PACD hybrid** with PACD/GO weight ratios of (a) 0.001, (b) 0.1 and (c) 0.5. Large aggregates from GO sheets were observed with increasing of PACD/GO ratios, indicating that PACDs act as crosslinking agents between GO sheets.

Size Distributions of GO-PACD Hybrid with AdCNa

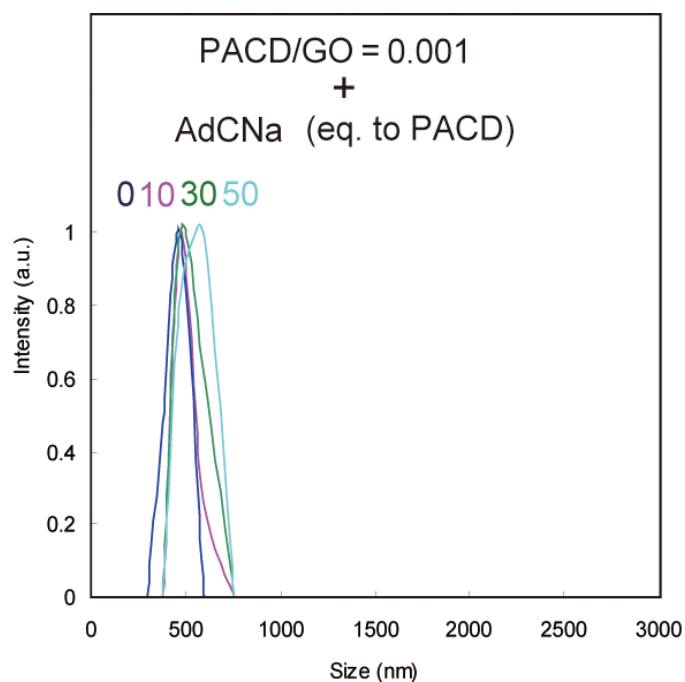
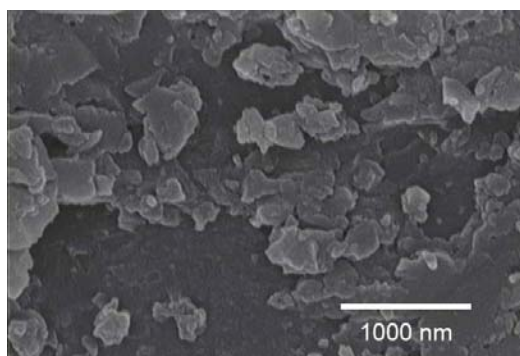


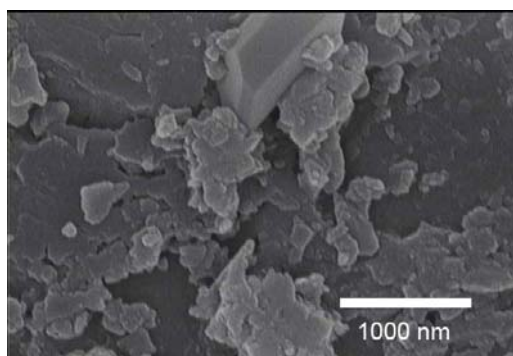
Figure 2S. Dynamic light scattering results indicating the colloidal size distributions of **GO-PACD hybrid** (PACD/GO = 0.001) upon addition of AdCNa (0 – 50 eq. to PACD). Addition of AdCNa to aqueous the GO-PACD hybrid solution gave no change in colloidal size.

SEM Images of GO-PACD Hybrid with Ad-Dimer

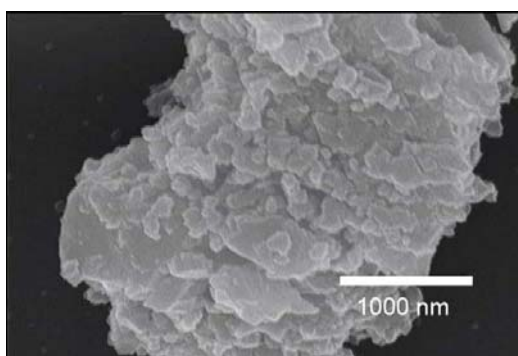
(a) GO-PACD hybrid (PACD/GO = 0.001) without Ad-Dimer



(b) GO-PACD hybrid (PACD/GO = 0.001) with Ad-Dimer (5 eq. to PACD)



(c) GO-PACD hybrid (PACD/GO = 0.001) with Ad-Dimer (15 eq. to PACD)



(d) GO-PACD hybrid (PACD/GO = 0.001) with Ad-Dimer (25 eq. to PACD)

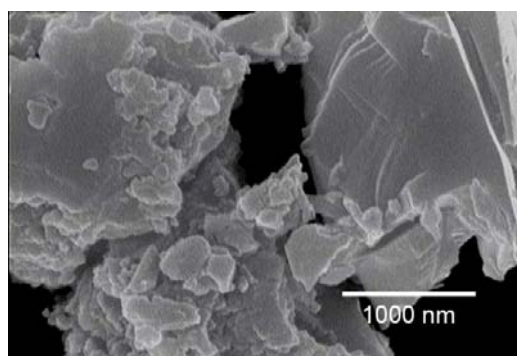


Figure 3S. SEM images of **GO-PACD hybrid** (PACD/GO = 0.001) (a) without Ad-Dimer and with (b) 5 eq., (c) 15 eq. and (d) 25 eq. of Ad-Dimer to PACD. Aggregates from GO sheets were observed upon addition of Ad-Dimer, indicating that Ad-Dimer acts as crosslinking agents between GO sheets.