Simultaneous enzymatic activity modulation and rapid determination of enzyme kinetics by highly crystalline graphite dots

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**Figure S1** TEM images and high-resolution XPS spectra of GD series, (A) GD1; (B) GD2; (C) GD3; (D) GD5. Scale bar: 20nm. Deconvolution of C1s of the XPS spectra were performed to analyze the possible components (C=C, C=O, C-O, and C-O-C if available) on the GD surface. The content of C-O-C in GD5 was too low to be deconvolved.

**Fig. S2** Size distributions of GD1-GD5. The measure results were obtained by a dynamic light scattering (DLS) instrument (Zetasizer Nano ZS, ZEN 3690, Malvern).
**Fig. S3** Comparison of FT-IR spectra of the PL and PL/GD4 complexes. Inset: a zoomed-in view of the red shift of the peak highlighted by the green oval.

**Fig. S4** The contact angle measurements of the GD1-GD5. The images were recorded by contact angle measurement instrument (DataPhysics OCA).