molecules

Enantioselective Labeling of Zebrafish for D-Phenylalanine Based on Graphene-Based Nanoplatform

Supporting Information

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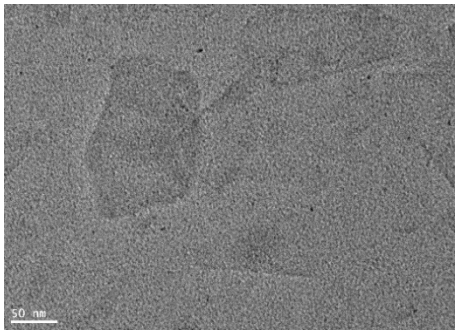


Figure S1. TEM images of GO.

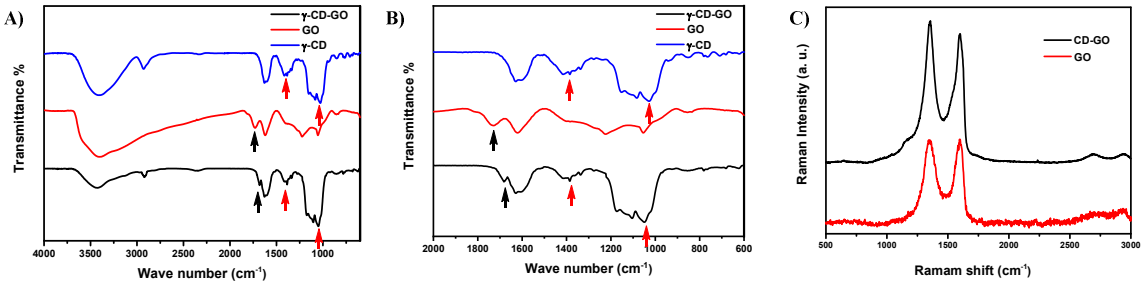
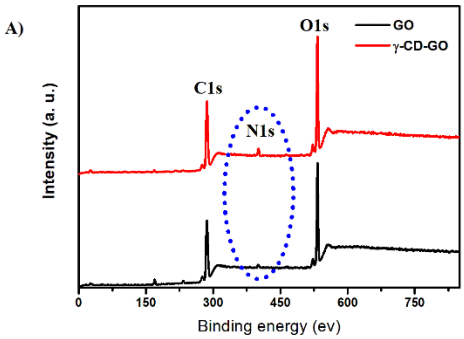
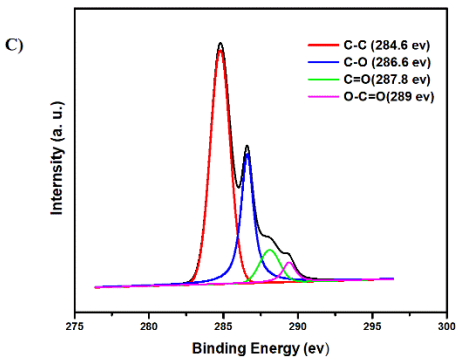


Figure S2. A) FT-IR spectra of pure γ-CD, GO, and γ-CD-GO, respectively; B) The amplification of FT-IR spectra; C) Raman spectra showing the D and G bands of GO and γ-CD-GO, respectively.



B)

Element Assay	C	N	O
GO	69.84 %	2.26 %	27.90 %
γ-CD-GO	67.89 %	2.86 %	29.25 %



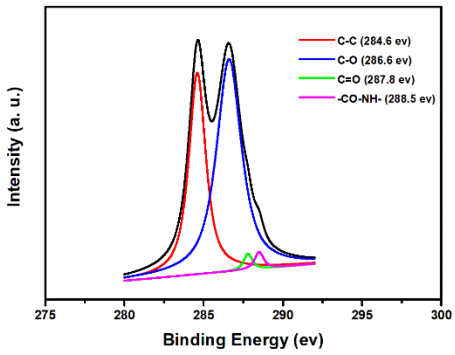


Figure S3. A) XPS spectrum of GO and γ-CD-GO; B) Element content analysis of GO and γ-CD-GO; XPS C1s spectrum of C) GO; D) γ-CD-GO, respectively.

Table S1. Thermodynamic parameters for the interaction of γ-CD with D/L-Phe-F by molecular simulation calculated at b3lyp/6-31G(d) levels using the Gaussian 03[1] package.

	Energy (a. u.)	ΔEnergy (a. u.)	ΔEnergy (kcal/mol)	ΔEnergy (kJ/mol)
γ-CD	-4858.55134324			
F-D-Phe	-1613.83970198			
F-L-Phe	-1613.84608168			
F-D-Phe+γ-CD	-6472.40242796	-0.01138274	-7.14	-29.89
F-L-Phe+γ-CD	-6472.40402960	-0.00660468	-4.14	-17.34

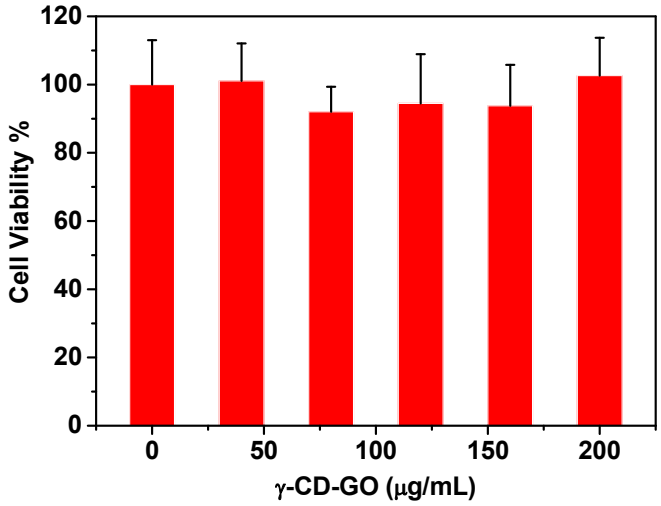


Figure S4. Relative cell viability of Hela treated with γ-CD-GO in different concentrations for 24 h in fresh medium.

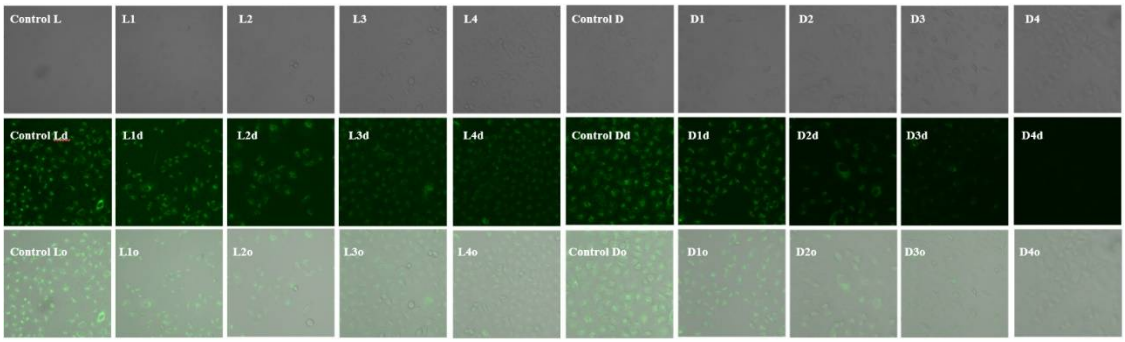


Figure S5. Confocal fluorescence microscopy images of Hela cells incubated with F-D/L-Phe (control L and D), or first incubated with F-D/L-Phe, then incubated with β-CD-GO in the concentration of 0.25 μg/mL (L1 and D1), 0.50 μg/mL (L2 and D2), 0.75 μg/mL (L3 and D3), and 1.00 μg/mL (L3 and D3) in sequence, and the images were obtained after extensive washing of cells with PBS for three times. Bright-field (top), dark-field fluorescence (middle), and overlap of images of dark and bright field (bottom), respectively.

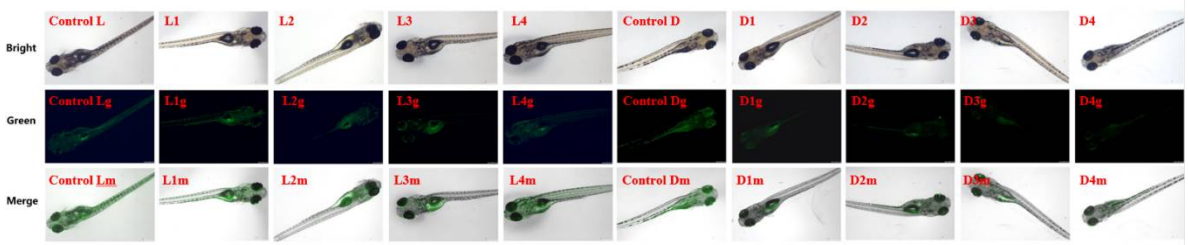


Figure S6. Fuorescence microscopy images of zebra fish incubated with F-D/L-Phe (control L and D), or first incubated with F-D/L-Phe, then incubated with β-CD-GO in the concentration of 0.25 μg/mL (L1 and D1), 0.50 μg/mL (L2 and D2), 0.75 μg/mL (L3 and D3), and 1.00 μg/mL (L3 and D3) in sequence, and the images were obtained after extensive washing of cells with PBS for three times. Bright-field (top), dark-field fluorescence (middle), and overlap of images of dark and bright field (bottom), respectively.