Supplementary Material

Graphene oxide nanosheets tailored with aromatic dipeptide nanoassemblies for a tunable interaction with cell membranes

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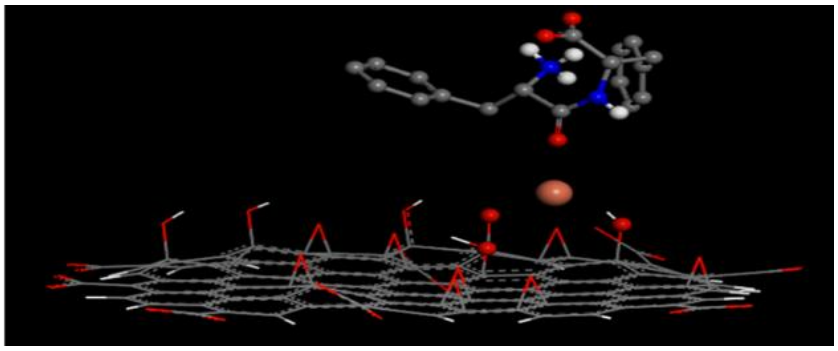
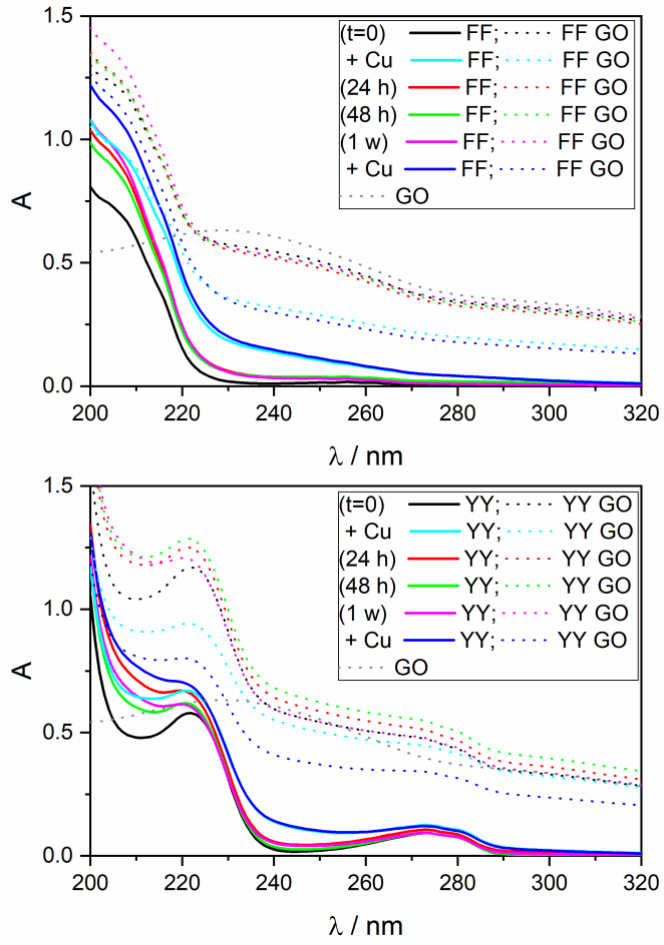
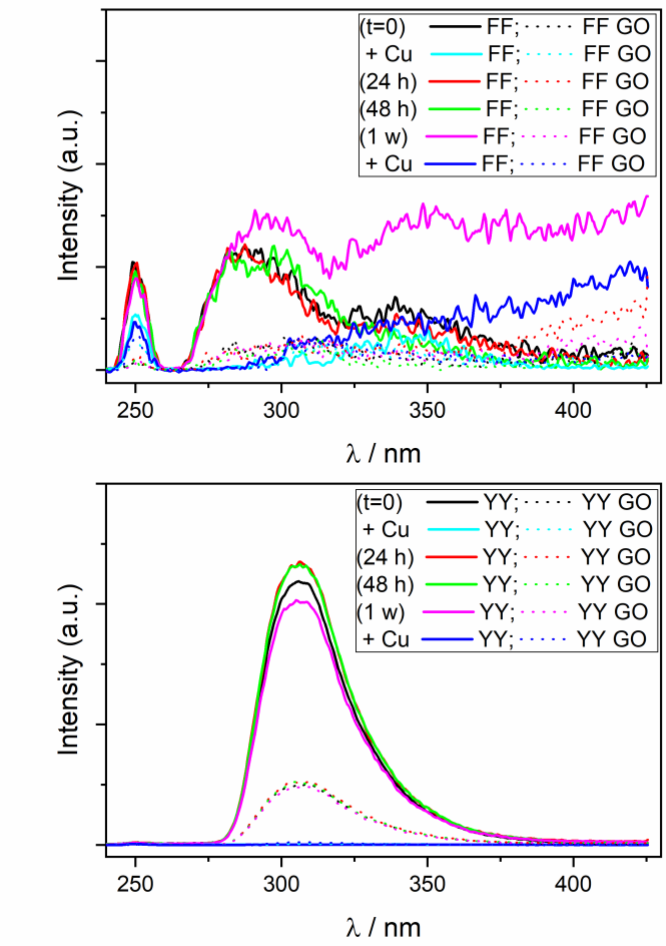


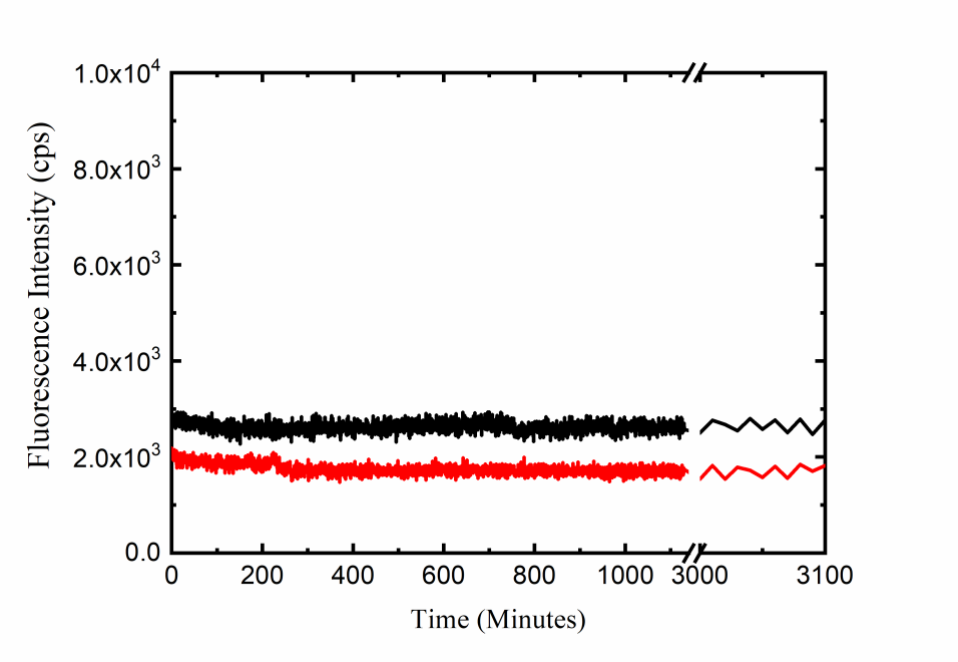
Supplementary Figure 1. A schematic representation of Phe-Phe dipeptide at the interface with a GO nanosheet in the presence of Cu(II).



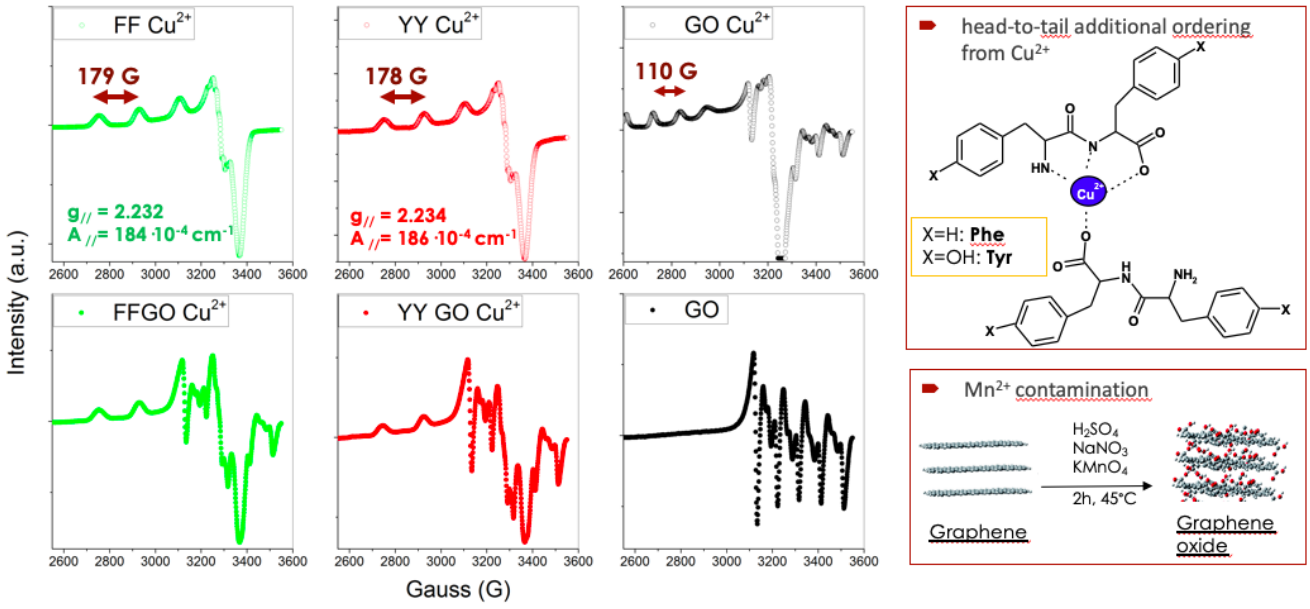
Supplementary Figure 2. UV-visible spectra of free dipeptide (solid curves, $5x10^{-5}$ M solution in water) and GO/dipeptide (dotted curves, GO concentration = 17 μg/mL) assemblies at different aging times since dissolution. For t=0 and t=1 week the spectra of the samples added with $CuSO_4$ ($5x10^{-5}$ M) are included for comparison.



Supplementary Figure 3. Emission spectra (excitation wavelength = 230 nm) of free dipeptide (solid curves, $5x10^{-5}$ M solution in water) and GO/dipeptide (dotted curves, GO concentration = 17 μg/mL) assemblies at different aging times since dissolution. For t=0 and t=1 week the spectra of the samples added with $CuSO_4$ ($5x10^{-5}$ M) are included.

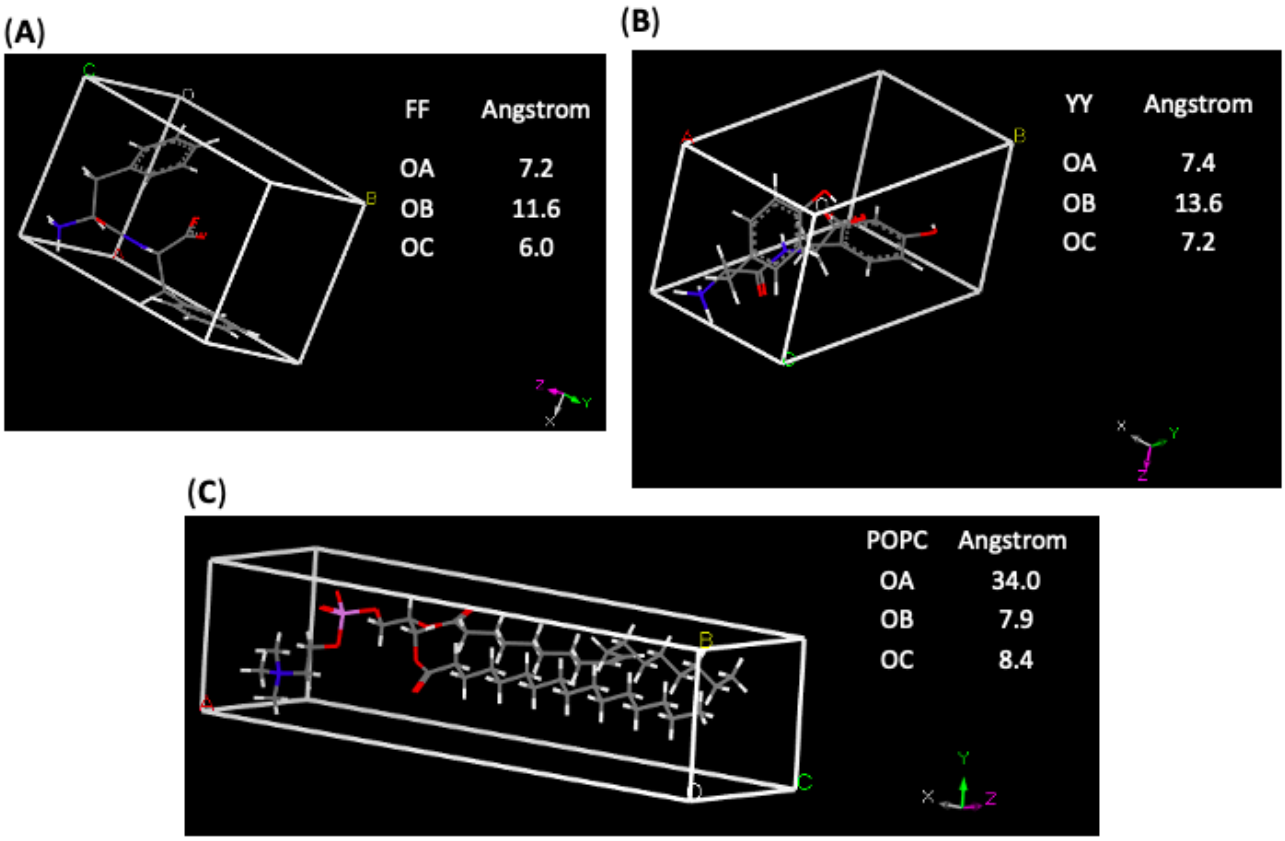


Supplementary Figure 4. Time dependent Th-T fluorescence profile for FF-GO (50 μM) in 10 mM phosphate buffer pH = 7.4 (red line) and H_2O (black line) recorded at 25°C for 2 days.



Supplementary Figure 5. EPR spectra of FF-Cu^{2+}, YY-Cu^{2+} and the corresponding GO-based platforms. Experimental conditions to record the spectra were as follows: 150 K in MQ-H_2O; $[dipeptide]$=$10^{-3}M$, GO concentration = 340 $\mu g/mL$, $[Cu^{2+}]$:$[dipeptide]$ = 1:1. The panels in the right hand side show one of the possible coordination environments of the copper chelates in the

peptide-copper complexes as well as the interlayer ions of manganese ‘contamination’ detected in the EPR spectra.



Supplementary Figure 6. Optimized structures of: (**A**) FF, (**B**) YY, (**C**) 1-palmitoyl-2-oleoyl-sn-glycero-3-phosphocholine (POPC).