

Supplementary Material

MoS₂-Carbon Nanodots as New Electrochemiluminescence Platform for Breast Cancer Biomarker Detection

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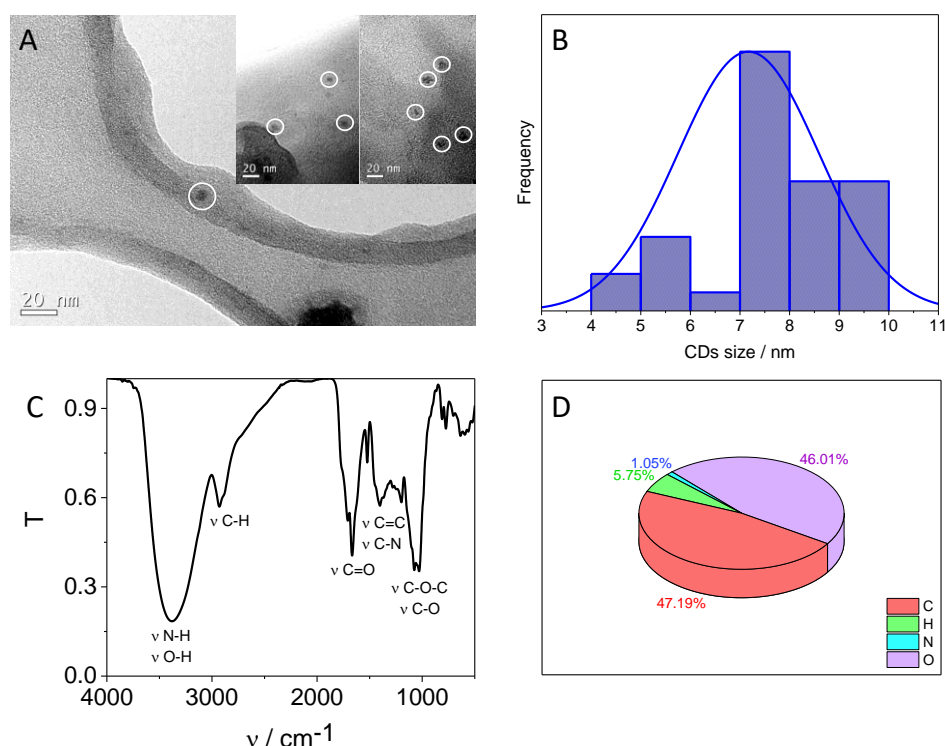
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Figure S1. (A) Transmission Electron Microscopy (TEM) images, (B) size histogram, (C) infrared absorption spectrum and (D) elemental analysis of the obtained carbon nanodots (CDs).



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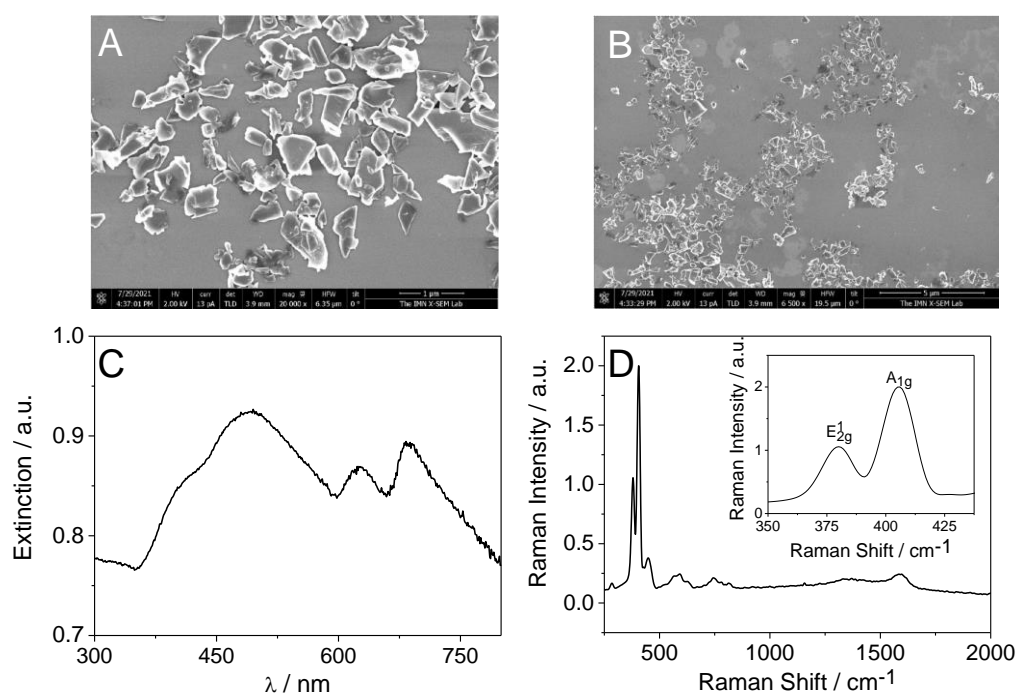


Figure S2. (A and B) Scanning Electron Microscopy (SEM) images of MoS₂-NS taken with a model VERIOS 460 from FEI. (C) Extinction and (D) Raman spectra (laser excitation 532 nm) of MoS₂-NS (the insert corresponds to a broadening of the spectra in the region of 350 to 438 cm⁻¹).

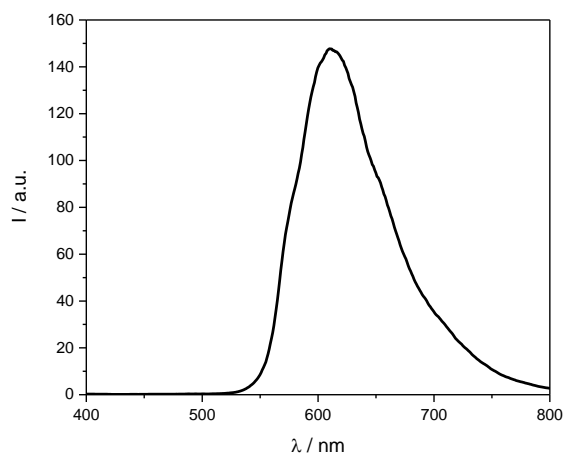


Figure S3. Fluorescence spectrum of 20 μ M [Ru(bpy)₃]²⁺ in 0.2M PB pH 8 obtained exciting at the maximum absorption wavelength of [Ru(bpy)₃]²⁺ specie ($\lambda_{\text{exc}} = 286$ nm).

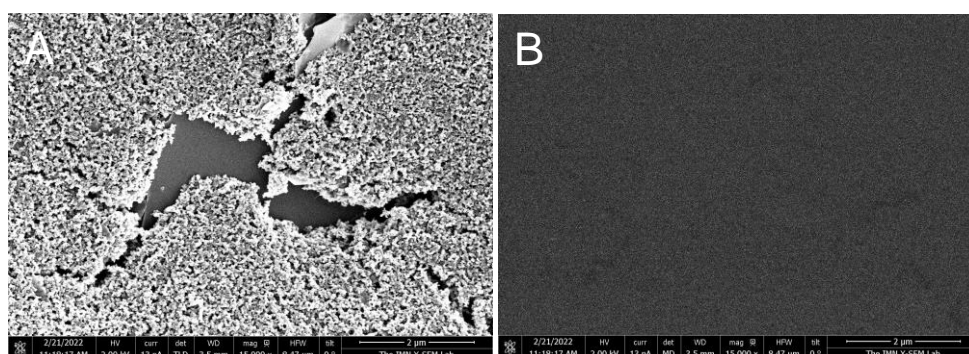


Figure S4. (A) Secondary and (B) backscattered electrons SEM images of bare Carbon Screen Printed Electrode (CSPE).

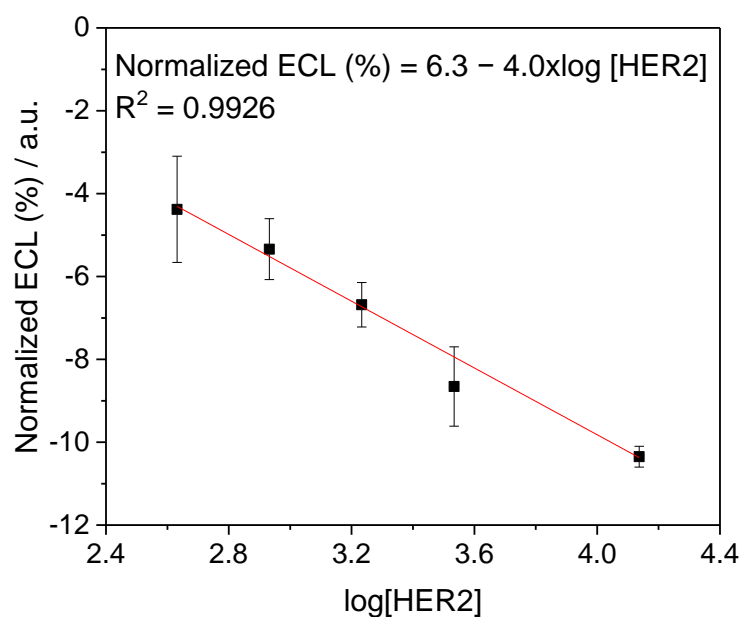


Figure S5. Calibration curve (n=3) of the normalized ECL response of the aptasensor vs log HER2 concentration (from 428 fg/mL to 13.7 pg/mL). Same experimental conditions than Figure 6.

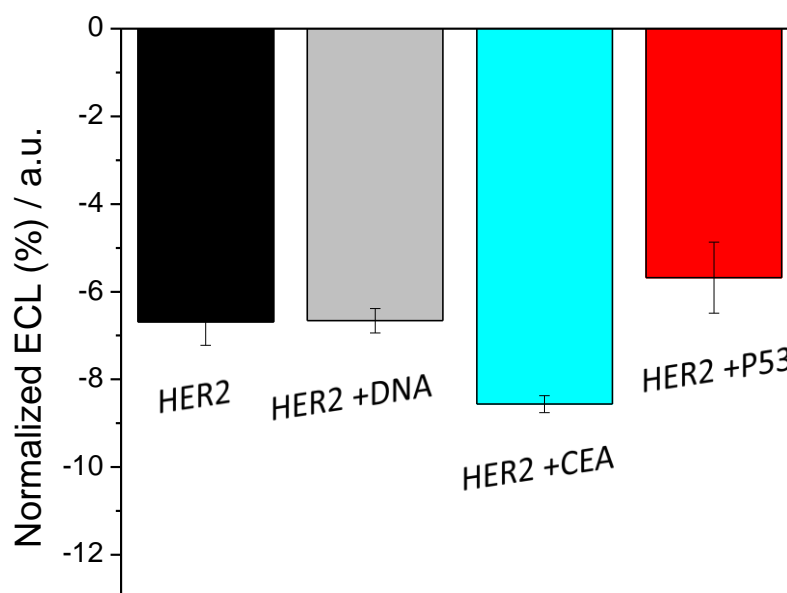


Figure S6. Interference study (n=3, three different platforms): ECL aptasensor response in presence of a solution of 1.71 pg/mL HER2 (black bar), 1.71 pg/mL HER2 and 1 μ M non-complementary DNA sequence (grey bar), 1.71 pg/mL HER2 and 100 ng/mL CEA (blue bar) and 1.71 pg/mL HER2 and 1.0 ng/mL p53 (red bar).