



Showcasing joint research from Professors M. Lucia Curri's, Luigi Falciola's and Ilaria Palchetti's laboratories, from Italian National Interuniversity Consortium of Materials Science and Technology (INSTM), Research Units of Bari, Milan and Florence, respectively.

Au nanoparticle decorated reduced graphene oxide and its electroanalytical characterization for label free dopamine detection

Colloidal synthesis of novel hybrid nanocomposites based on Au nanoparticles (NPs) anchored *via* π - π stacking on the 1-aminopyrene (AP)-functionalized reduced graphene oxide (RGO) were optimized, exploring the impact of the experimental parameters on the final nanostructured material. The resulting nanocomposites exhibited dispersibility in organic solvents for the modification of screen-printed carbon electrodes. Electrochemical analysis reveals dopamine detection capabilities. The AP linker facilitated NP-RGO electron coupling, influencing electrical conductivity and the Au NP size dependent electroanalytical activity. The hybrid nanoplatforms demonstrated superior electroactivity for dopamine determination, showcasing potential for point-of-care biomarker monitoring in modern medicine.

As featured in:



See M. Lucia Curri, Luigi Falciola, Ilaria Palchetti *et al*, *Mater. Adv.*, 2024, 5, 549.