Supporting Information

Single Layer Graphene as a Stable and Transparent Electrode for Non-Aqueous Radical Annihilation Electrogenerated Chemiluminescence

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Abstract: We present graphical aids for understanding SECM experiments, AFM images showing the characterization of single layer graphene over glass, an approach curve displaying facile electron transfer on single layer graphene, as well as a comparison between single layer graphene electrodes and fluorine doped tin oxide during reductive processes.

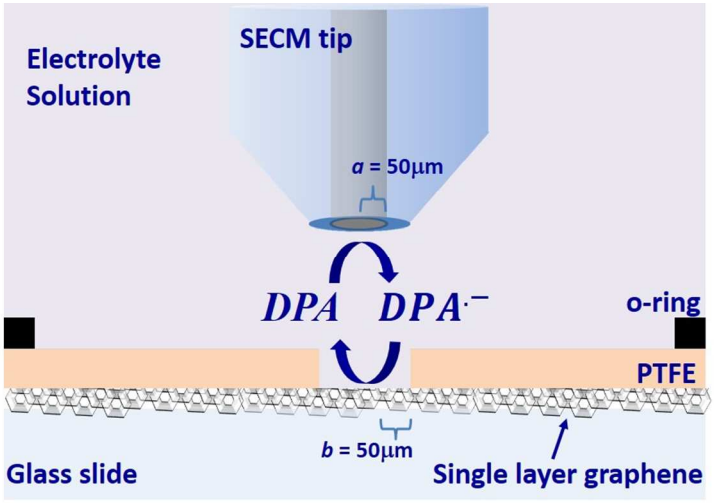

Figure S1. General layout of SECM tip aligned above a hole in the insulating PTFE layer allowing interaction solely between the tip-generated products and the single spot of SLG.

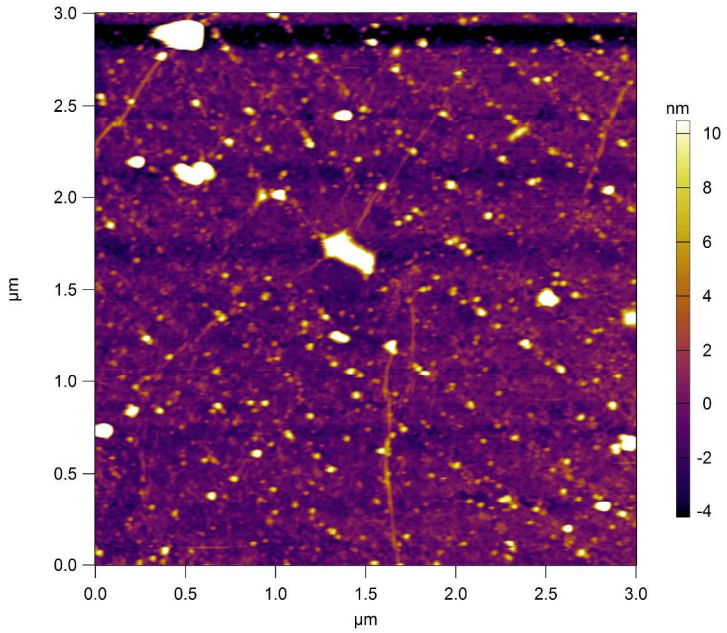

Figure S2. Tapping mode AFM image of SLG electrode deposited on glass.

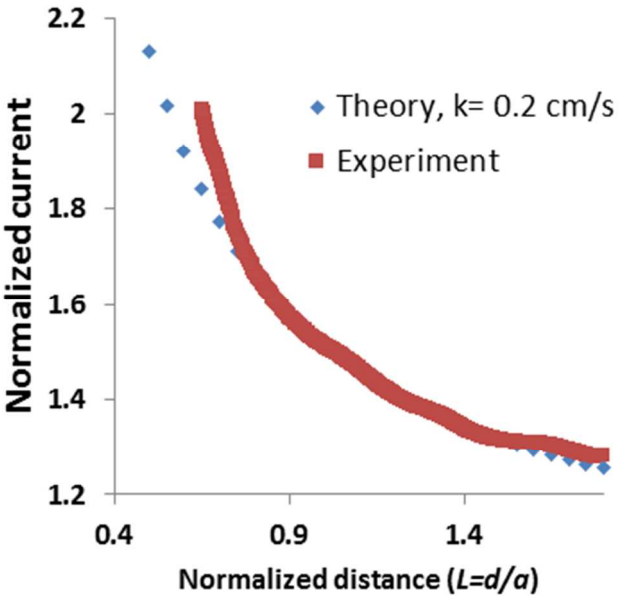

Figure S3. SECM approach curve on SLG using a 25 micrometer Au tip in positive feedback mode using DPA in acetonitrile as redox mediator. SLG electrode was held at open circuit. Theory (Ref. 54) shows approach curve at the point where quasi-reversible kinetics become apparent and deviate from the experimental approach curve, thus setting a lower limit to the measured kinetics.

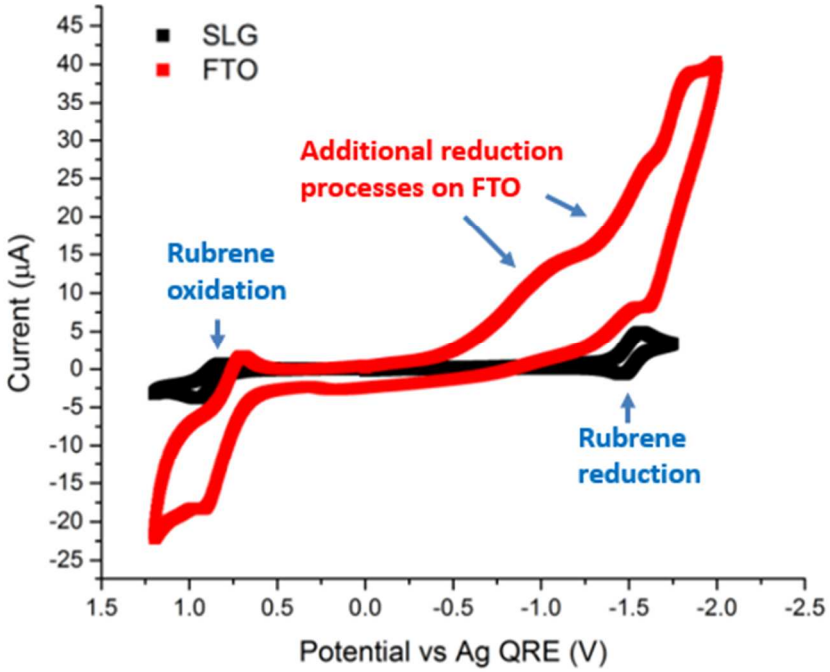

Figure S4. Comparison between the voltammetry of rubrene 1mM in benzene/acetonitrile electrolyte using a fluorine-doped tin oxide (FTO) electrode and a single layer graphene (SLG) on glass electrode. Area of FTO was larger than that of SLG such that currents are not comparable, however the FTO electrode clearly shows additional processes related to the reduction of the oxide.