Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

CVD graphene based immunosensor

Adeline Huiling Loo, Adriano Ambrosi, Alessandra Bonanni* and Martin Pumera*

Division of Chemistry & Biological Chemistry, School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore 637371

Fax: (65) 6791-1961

Email: a.bonanni@ntu.edu.sg; pumera@ntu.edu.sg

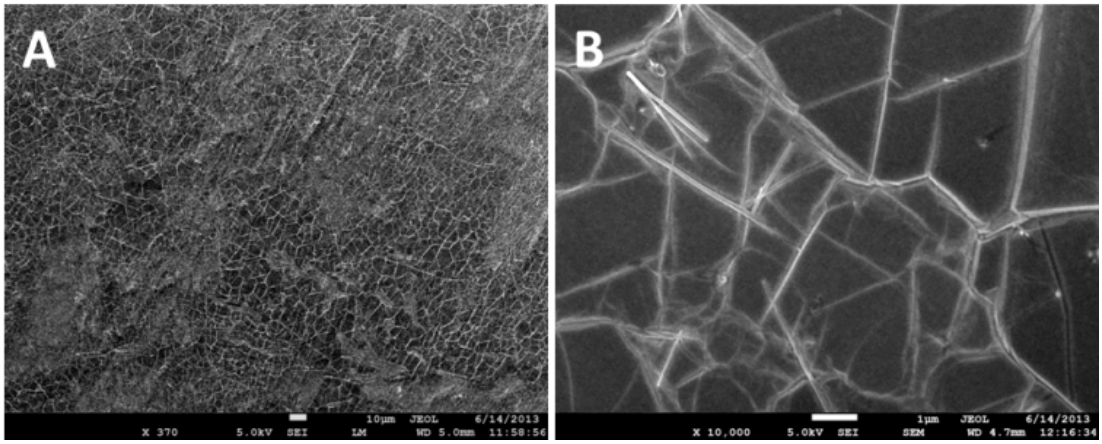

Figure S1. Scanning electron microscope images of commercial CVD graphene. Magnification of (A) 370 × and (B) 10 000 ×. Scale bars of (A) 10 μm and (B) 1 μm.

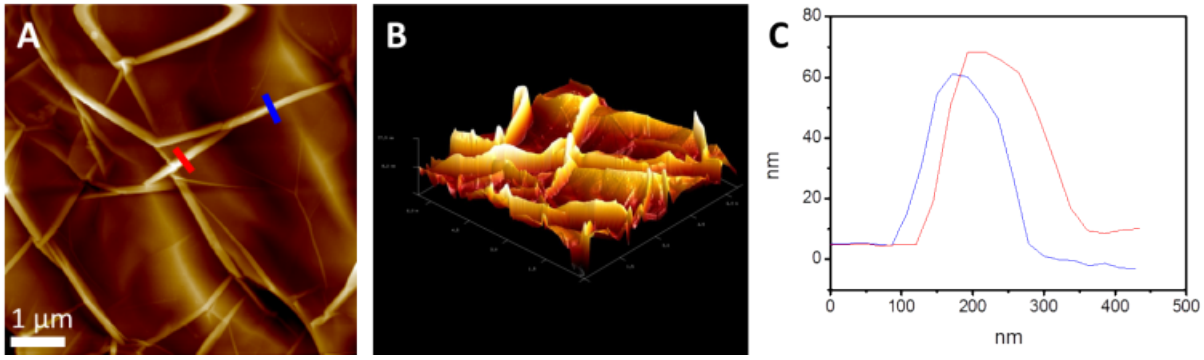

Figure S2. Atomic force microscopy characterization of commercial CVD graphene. (A) Two-dimensional height and amplitude profile, (B) Three-dimensional height profile and (C) Cross-sectional analysis.

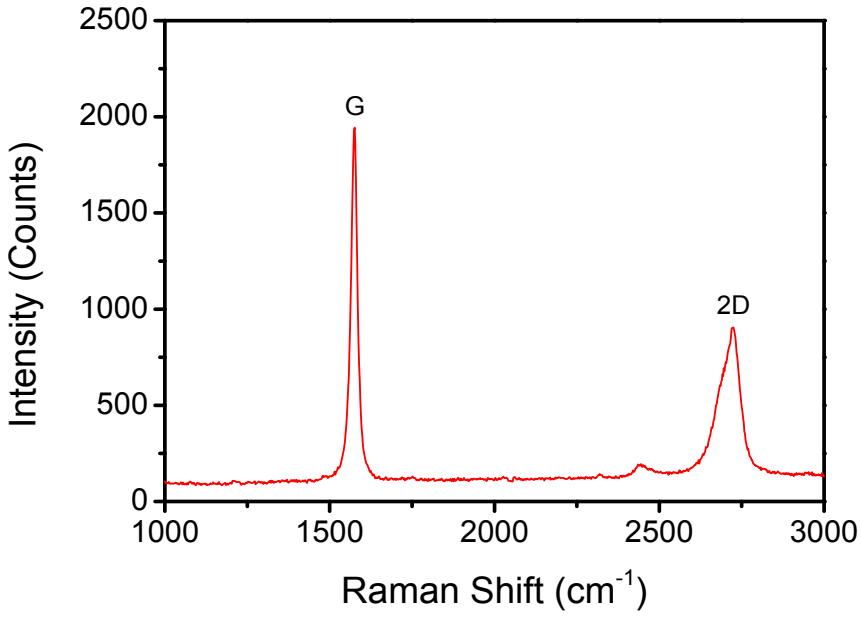

Figure S3. Raman spectrum of commercial CVD graphene.

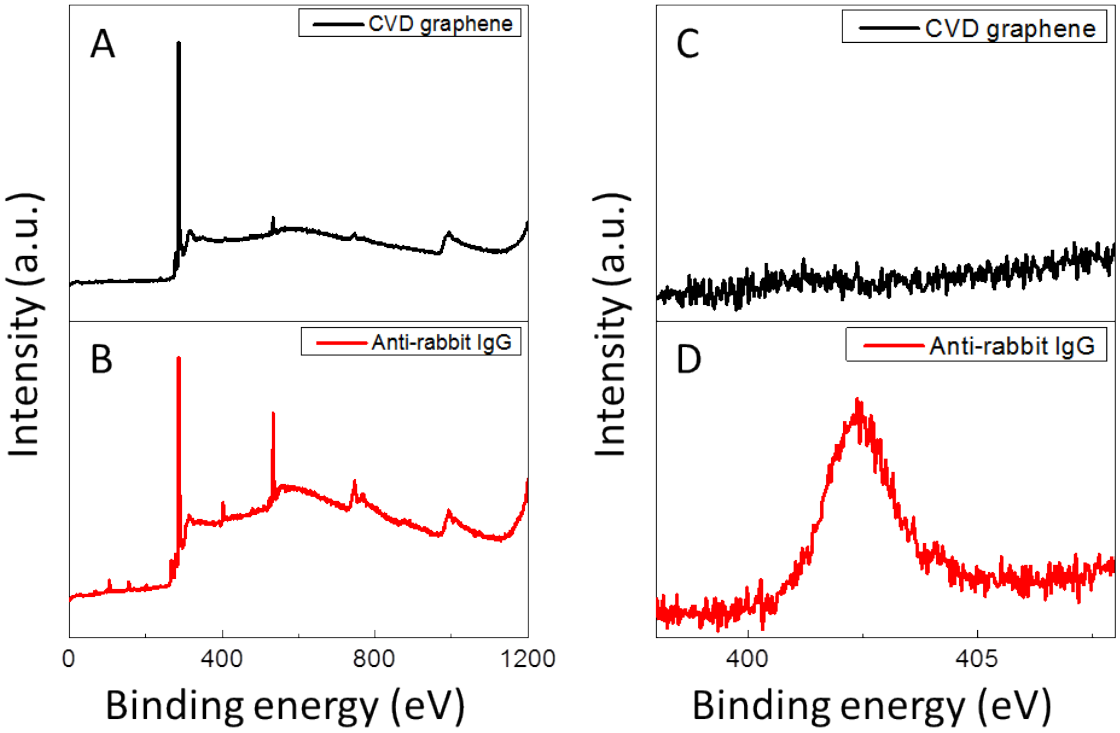

Figure S4. X-ray photoelectron spectroscopy characterization of commercial CVD graphene before and after anti-rabbit IgG immobilization by physical adsorption technique. (A) Wide-scan spectrum of CVD graphene, (B) Wide-scan spectrum of CVD graphene after anti-rabbit IgG immobilization, (C) High-resolution N 1s core-level spectrum of CVD graphene and (D) High-resolution N 1s core-level spectrum of CVD graphene after anti-rabbit IgG immobilization.

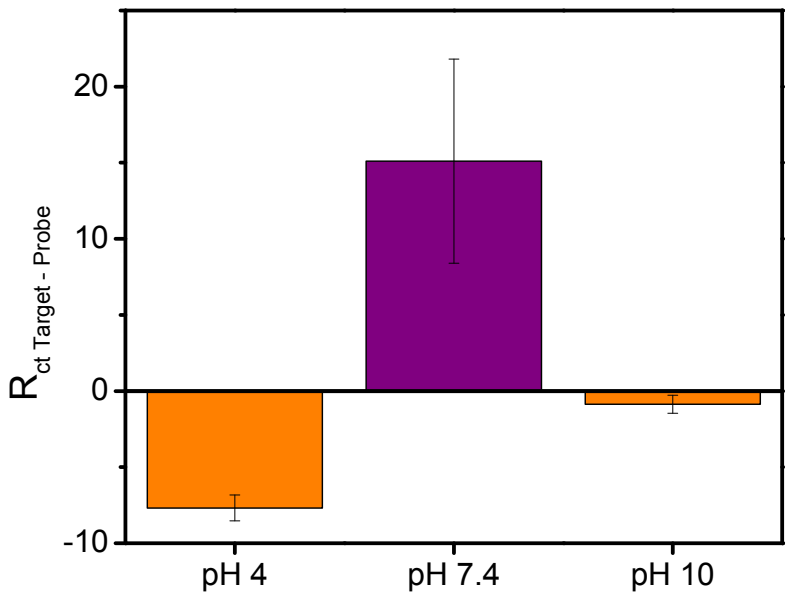

Figure S5. Comparison of impedimetric response towards different pH of PBS buffer solution. Signal is represented as $R_{ct\ Target\ -\ Probe}$. The error bars relate to replicate experiments. All measurements were conducted with 10 mM $K_4[Fe(CN)_6]/K_3[Fe(CN)_6]$ in PBS buffer solution at room temperature with Ag/AgCl as reference electrode.

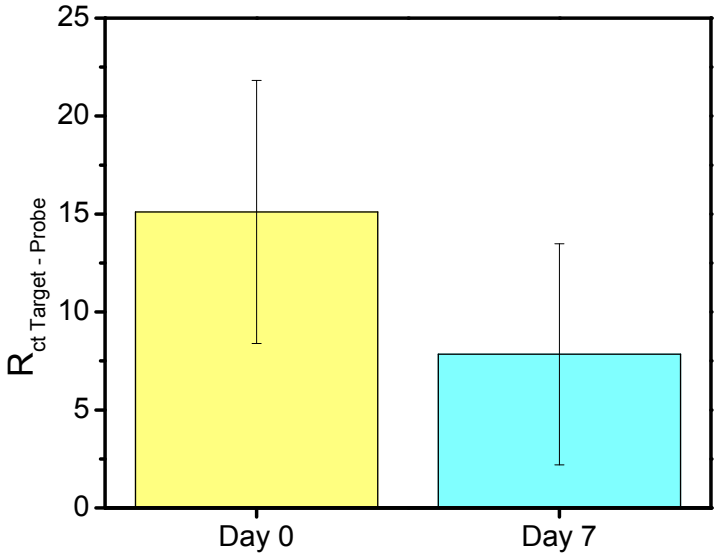

Figure S6. Stability study for the anti-rabbit IgG modified electrode incubated with rabbit IgG on the same day (Day 0) and after 7 days (Day 7). Signal is represented as $R_{ct\ Target\ -\ Probe}$. The error bars relate to replicate experiments. All measurements were conducted with 10 mM $K_4[Fe(CN)_6]/K_3[Fe(CN)_6]$ in PBS buffer solution (pH 7.4) at room temperature with Ag/AgCl as reference electrode.