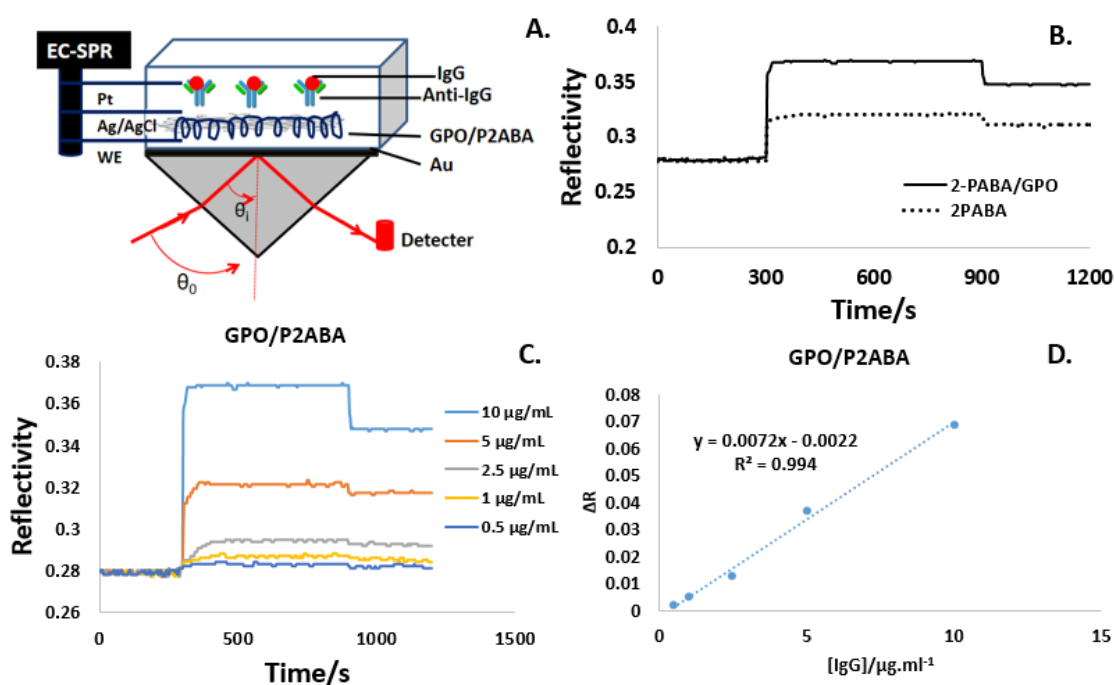


## Sensitivity Enhancement of Electrochemical-Surface Plasmon Resonance IgG Immunosensor Based on Graphene Oxide/Poly(2-Aminobenzylamine) Film

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An electrochemical surface plasmon resonance immunosensor (EC-SPR) is a technique for estimation of biomolecular interaction in real-time. In this research, The EC-SPR biosensor based on poly(2-aminobenzylamine)/graphene oxide (P2ABA/GPO) was developed for the detection of human IgG. Figure 1A represents EC-SPR setup. GPO dispersed in 2ABA monomer solution was deposited on gold surface by cyclic voltammetry with a potential range of -0.2 to 1.1 V for 2 cycles at a scan rate of 20 mV/s. After electropolymerization of the P2ABA, the SPR dip shift was observed and then antibodies were covalently bound onto the platform. At the same condition, a film obtained from GPO-2ABA solution showed higher current response due to better electroactivity. The observable enhancement of IgG detection on P2ABA/GPO (solid line) compared with that on P2ABA (dash line) is shown in Figure 1B. The concentration dependence exhibited a linear relationship with human IgG in the range from 0.5 to 10  $\mu\text{g/mL}$  and the sensitivity of 0.011  $\mu\text{g/mL}$  with the lowest detection limit of 0.135  $\mu\text{g/mL}$ , suggesting good device performances in the detection of human IgG is shown in Figure 1C and 1D.



**Fig. 1** Schematic diagram of the construction of GPO/P2ABA-based immunosensor for the detection of human IgG and the SPR properties on the detection of human IgG.