

Supporting Information

Electrochemical Sensors Based on Porous Nanocomposite Films with Weak Polyelectrolyte-Stabilized Gold Nanoparticles

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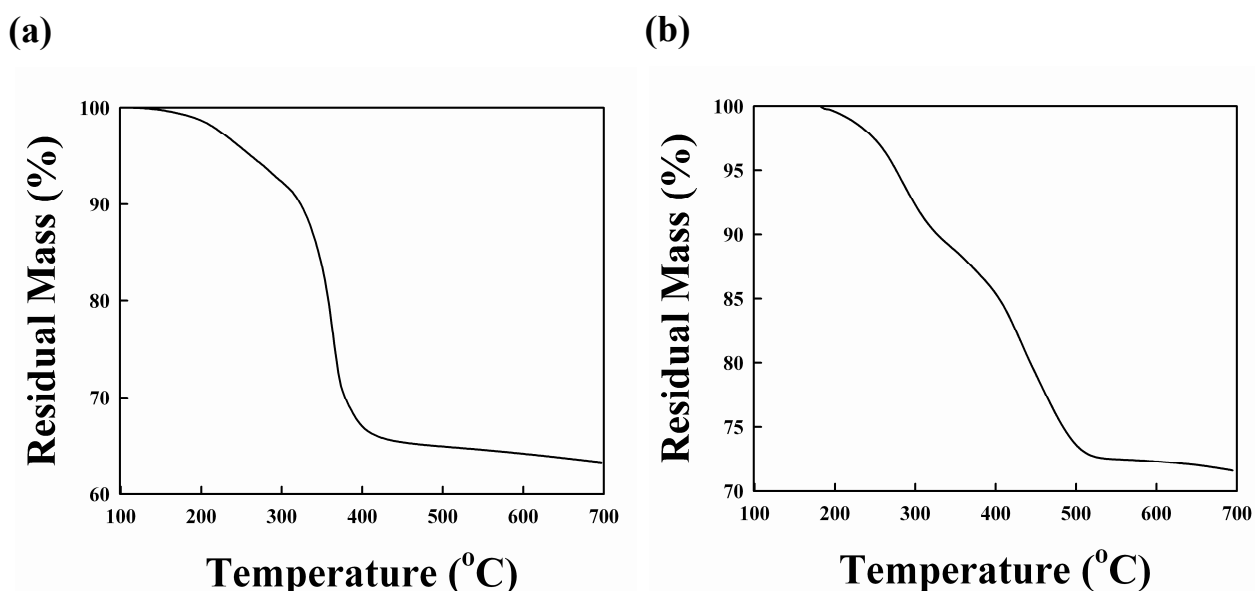


Figure S1. Thermogravimetric analysis of (a) PAA-Au_{NP} and (b) PAA-Au_{NP} powder without excess PAH or PAA chains. For measuring the amount of PEs bound to Au_{NPs}, the powder was annealed with increasing temperature to 700 °C at a heating rate of 5 °C·min⁻¹. After thermal treatment, the amount ratio of thermally decomposed PAH and PAA was measured to be about 36 and 28 %, respectively.

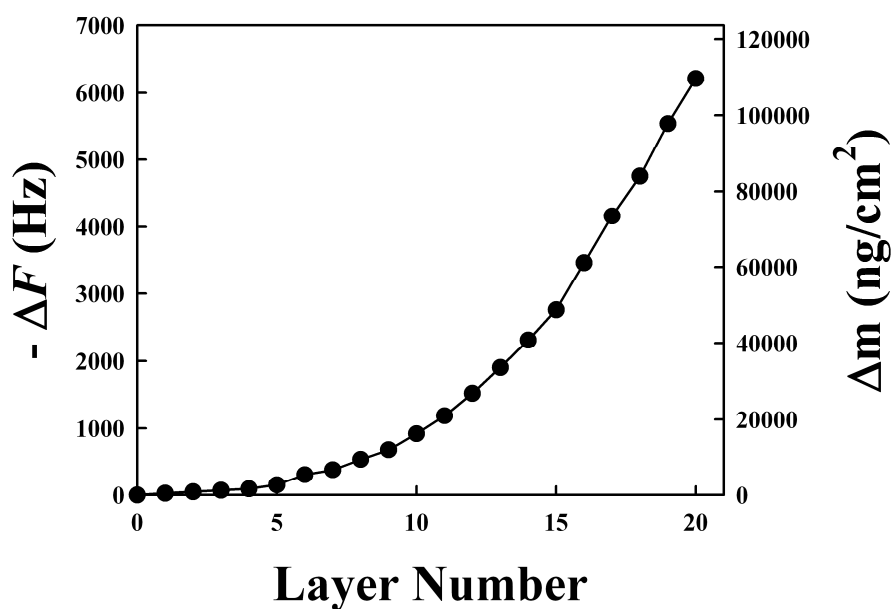


Figure S2. QCM data (i.e., frequency and mass change) of PAH/PAA multilayers as a function of layer number. The solution pH of PAH and PAA were adjusted to 7.5 and 3.5, respectively.

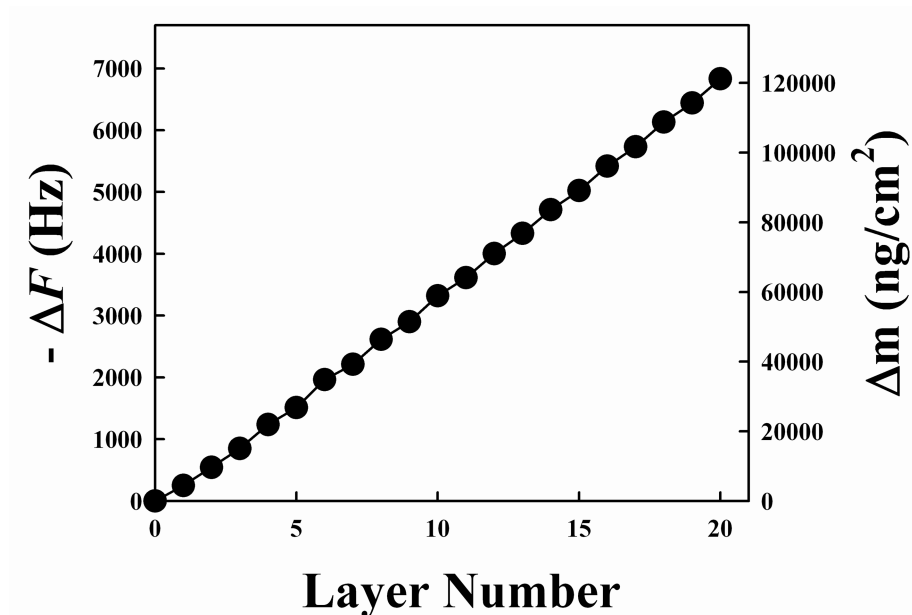


Figure S3. QCM data (i.e., frequency and mass changes) of PAH-Au_{NP}/PAA-Au_{NP} multilayers containing no excess PE chains as a function of layer number. The even and odd layer numbers in QCM data indicate PAA-Au_{NP} and PAH-Au_{NP}, respectively.

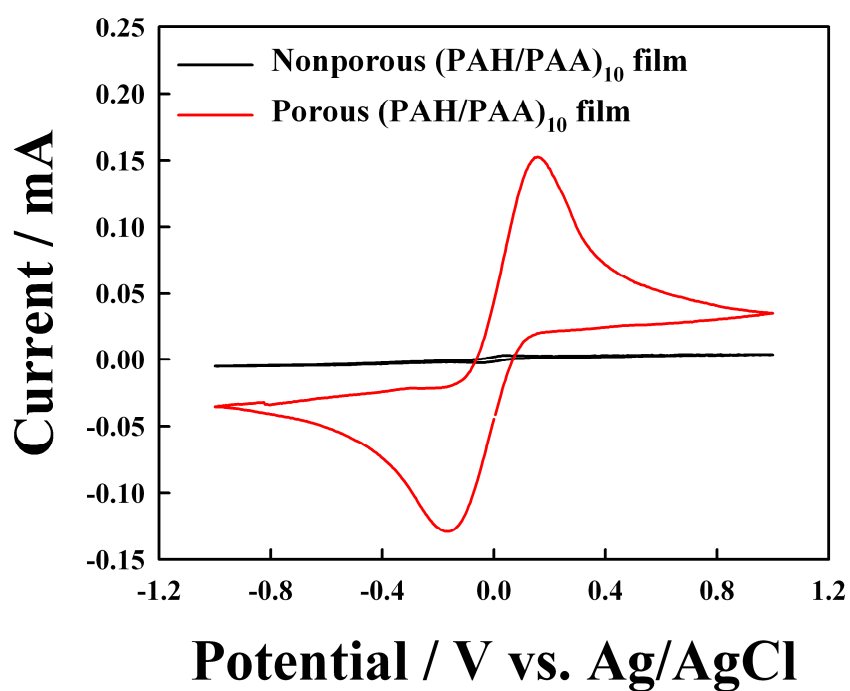


Figure S4. Cyclic voltammograms of 10 mM $\text{K}_3\text{Fe}[\text{CN}]_6/\text{K}_4\text{Fe}[\text{CN}]_6$ in pH 7.0 PBS at porous and nonporous $(\text{PAH-Au}_{\text{NP}}/\text{PAA-Au}_{\text{NP}})_{10}$ multilayer-coated electrodes with scan rate of $50 \text{ mV}\cdot\text{S}^{-1}$.

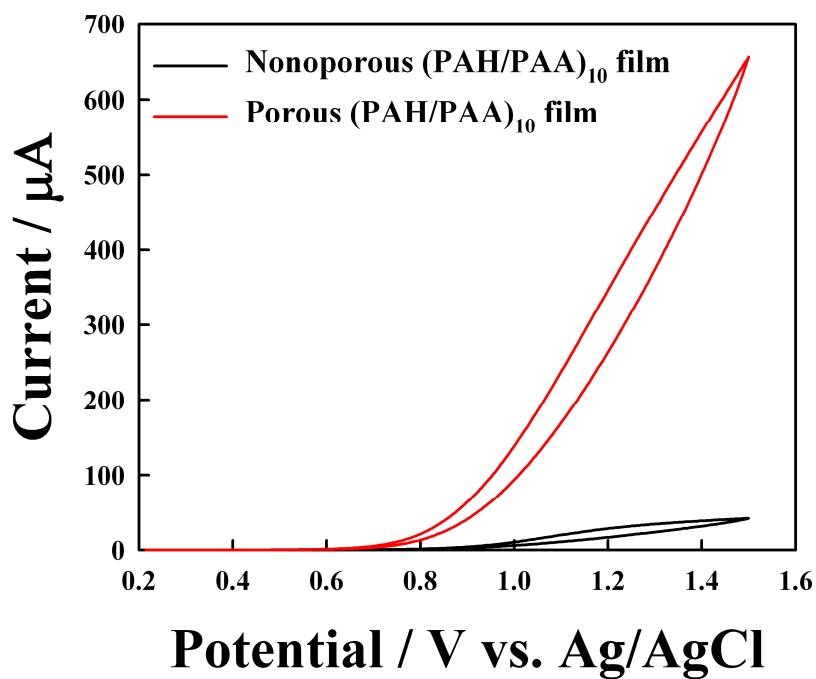


Figure S5. Cyclic voltammograms of the amperometric responses of porous and nonporous (PAH/PAA)₁₀ multilayer-coated electrodes in pH 3.0 PBS containing 20 mM NaNO₂ with scan rate of 50 mV·S⁻¹.