

## Supporting Information

### **Glucose oxidase and polyacrylic acid based water swellable enzyme–polymer conjugates for promoting glucose detection**

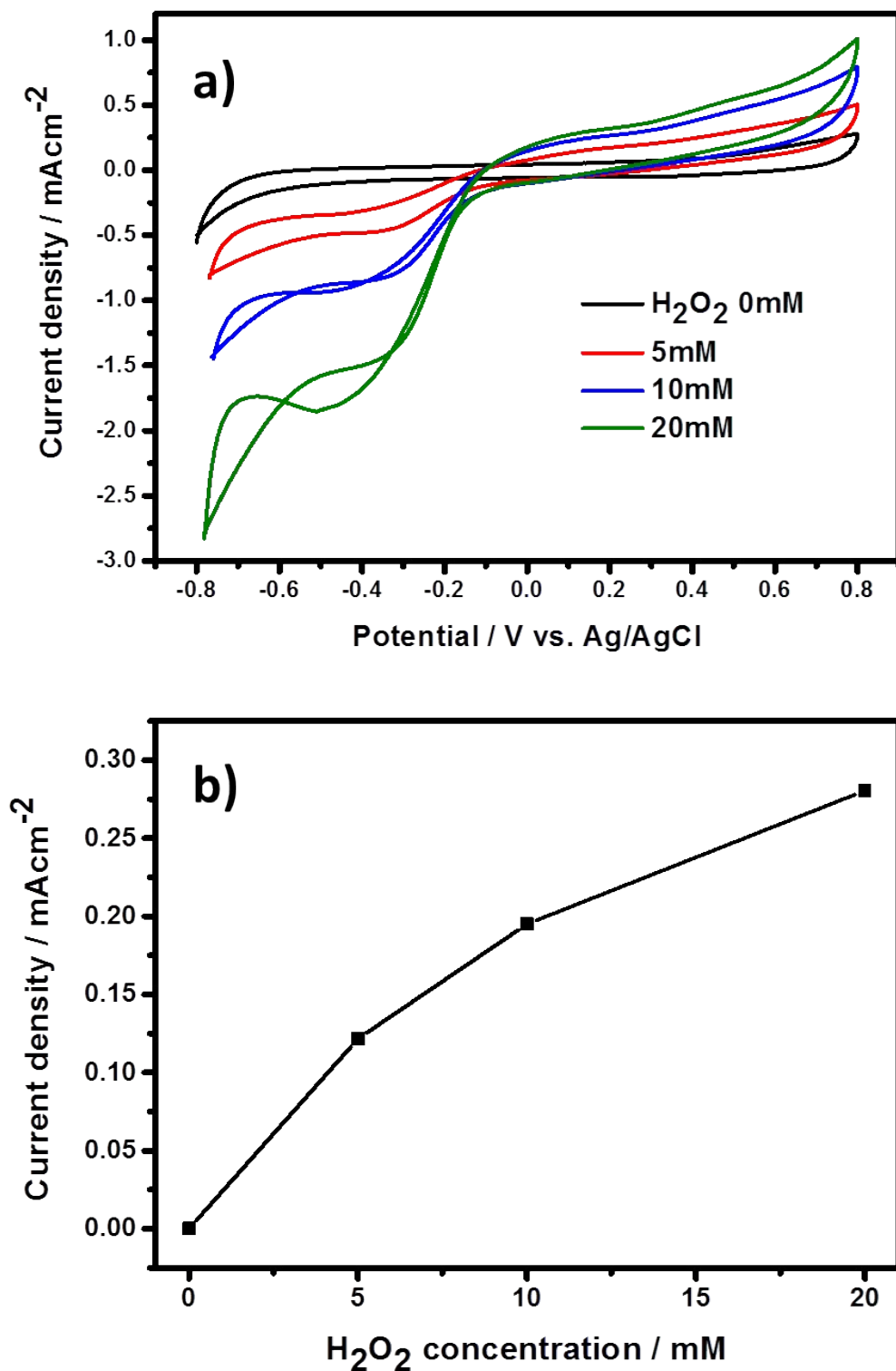
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#### **I. Electrochemical and polarization curve measurements of catalysts**

Electrochemical measurements were performed using potentiostat workstation connected to computer (Bio-Logic SP-240, USA). For the CV measurement, Pt wire was used as a counter electrode and Ag/AgCl (soaked in 3.0 M NaCl) was used as reference electrode. The working electrode was prepared by depositing 10  $\mu$ L of catalyst solution on the glass carbon electrode (GCE). After drying, 5% nafion 117 solution was deposited upon the catalyst. For the electrolyte solution, 0.01 M phosphate buffer solution (PBS, pH 7.4) was used, while high purity N<sub>2</sub> and air gases were provided to the electrolyte solution to form the predetermined atmosphere (N<sub>2</sub>- and air-states). All the tests were performed at room temperature [1,2].

#### **References**

- [1] Y. Chung, K. H. Hyun, Y. Kwon, *Nanoscale* 8 (2016) 1161–1168.
- [2] Y. Chung, Y. Ahn, M. Christwardana, H. Kim, Y. Kwon, *Nanoscale* 8 (2016) 9201-9210.



**Fig. S1.** a) Cyclic voltammograms of GO-PEI composite measured with H<sub>2</sub>O<sub>2</sub> injection of 0, 5, 10 and 20 mM, and b) a relationship between current densities observed at 0.6 V and H<sub>2</sub>O<sub>2</sub> concentration in electrolyte. For CV tests, high purity N<sub>2</sub> is supplied to create O<sub>2</sub>-free state, 0.01 M PBS (pH 7.4) electrolyte and 10 mV·s<sup>-1</sup> potential scan rate were used.