

Electronic Supplementary Information

Electrosynthesis of Diphenyl Carbonate by Homogeneous Pd Electrocatalysts Using Au Nanoparticles on Graphene as Efficient Anodes

Ryoichi Kanega,^a Hitoshi Ogihara,^b and Ichiro Yamanaka^{*ab}

^a Department of Applied Chemistry, Tokyo Institute of Technology, Tokyo 152-8552 Japan

^b Department of Chemistry and Materials Science, Tokyo Institute of Technology, Tokyo 152-8552 Japan

*Corresponding author: +81-3-5734-2144, yamanaka@cms.titech.ac.jp

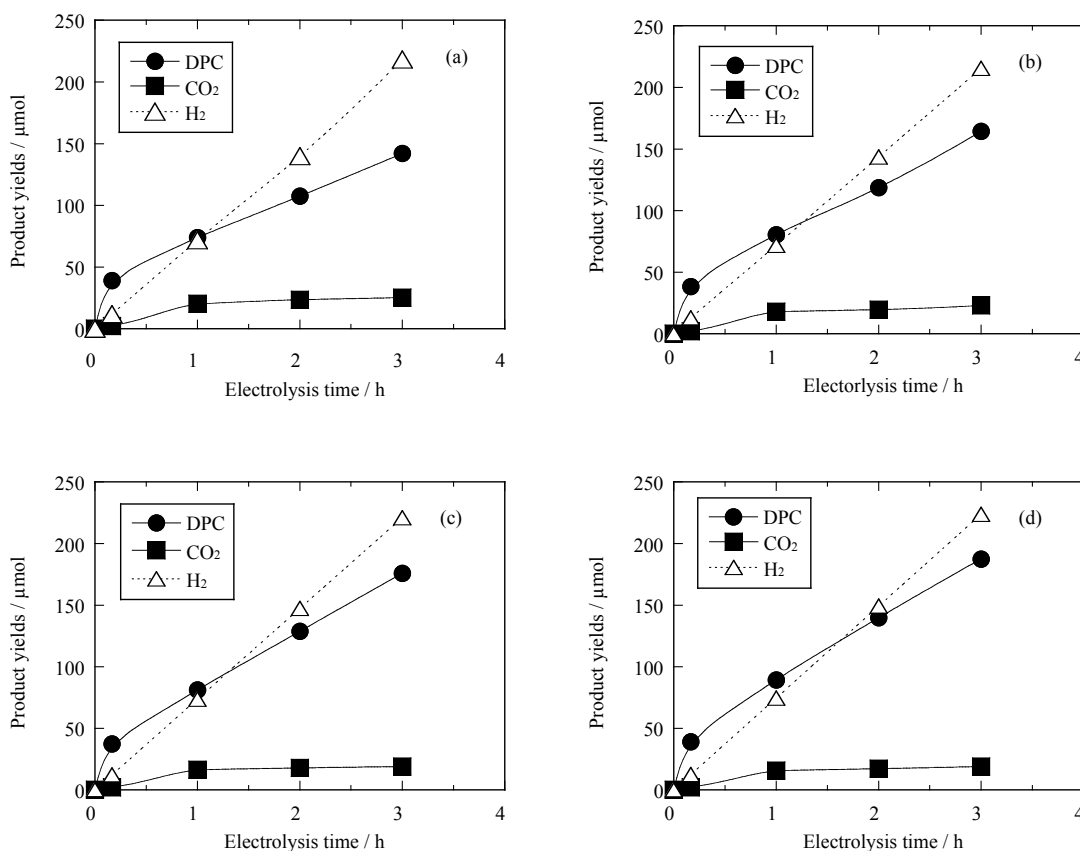


Fig. S1 Time courses of DPC, CO₂ and H₂ under galvanostatic electrolysis at 5 mA using (a) Au NPs//GR(H₂, 573K), (b) Au NPs//GR(BH, 298K), (c) Au NPs//GR(BH, PVP, 298K), and (d) Au NPs//GR(BH, PVP, 273K).

PdCl₂(MeCN)₂ : 60 μmol, Si*i*-BuHCl : 180 μmol, PhOH : 30 mmol, PhONa : 0.5 mmol, CH₃CN : 30 mL, and *P*(CO) : 101 kPa.

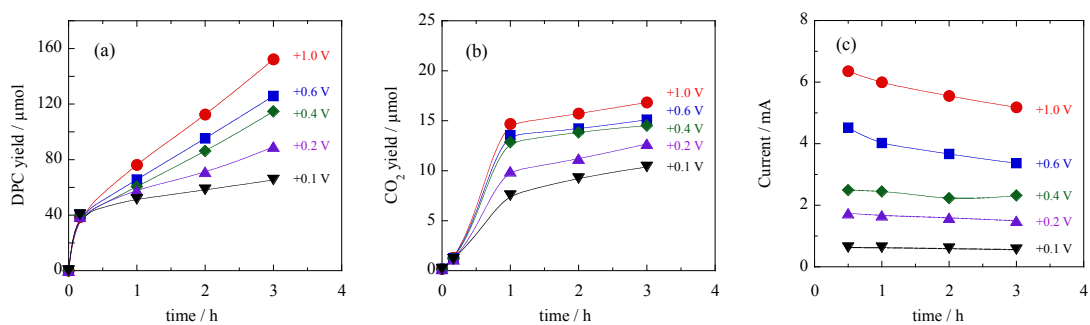


Fig. S2 Time course of (a) DPC and (b) CO_2 yields and (c) current at potentiostatic electrolysis at Au NPs//GR(BH, PVP, 208K) anode.

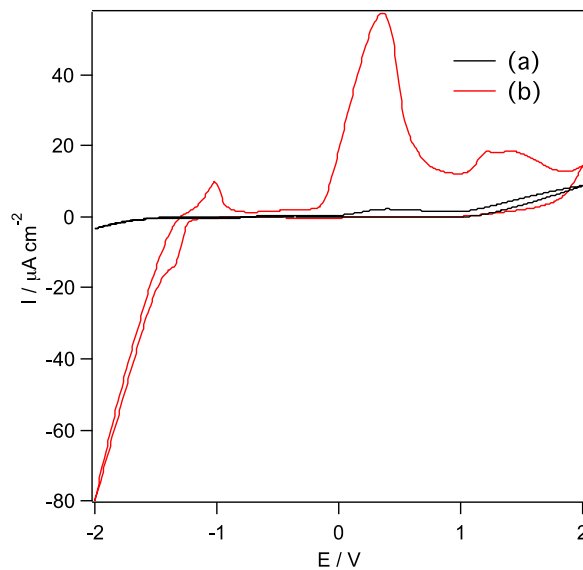


Fig. S3 CV curves for (a) $\text{CH}_3\text{CN}/\text{PhOH}/\text{PhONa}$ in He and (b) $\text{CH}_3\text{CN}/\text{PhOH}/\text{PhONa}/\text{SiI-BuHCl}$ in He with Pd electrocatalysts.

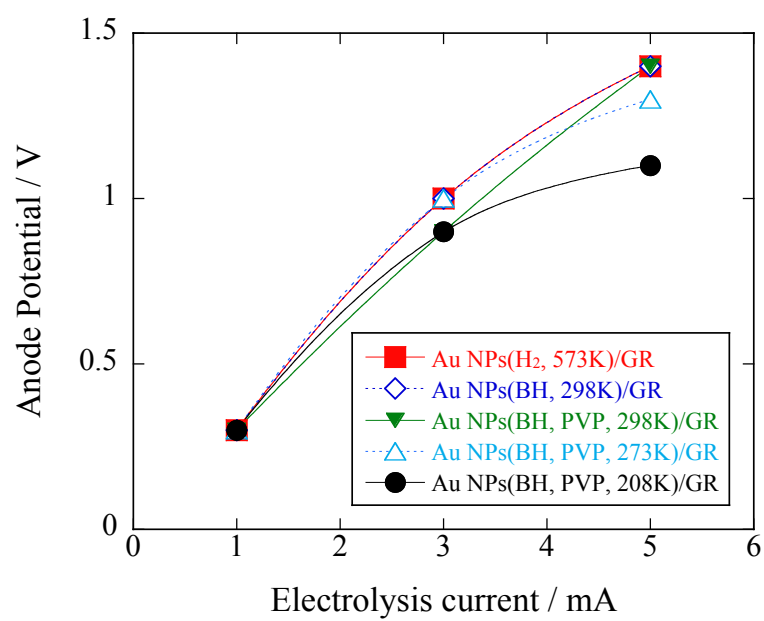


Fig. S4 Anode potentials at Au NPs//GR anodes as a function of electrolysis current during DPC synthesis.