Supplementary Information

Bare laser-synthesized palladium-gold alloy nanoparticles as efficient electrocatalysts of glucose oxidation for energy conversion applications

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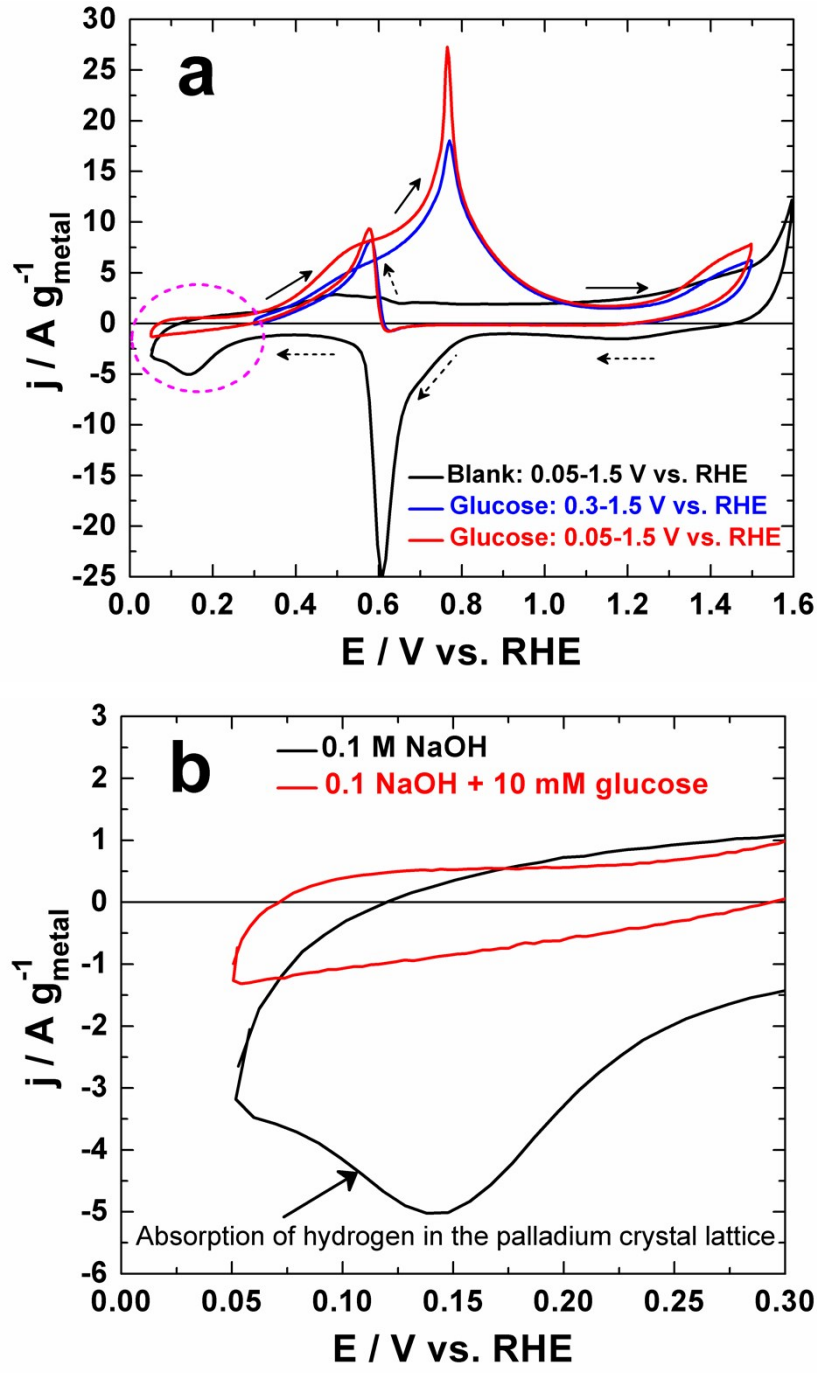

Fig. S1 (a) CVs of Pd electrodes formed by laser-ablated NPs recorded at 20 mV s^{-1} and 20 °C in: 0.1 M NaOH from 0.05-1.6 V vs. RHE (black), 0.1 M + 10 mM glucose from 0.3-1.5 V vs. RHE (blue) and 0.1 M + 10 mM glucose from 0.05-1.5 V vs. RHE (red). **(a)** Close-view (zoom) of the electrode potential window indicated by the dashed circle in (a). Note: Each curve was recorded by a new fresh electrode. From 0.05-1.6 V vs. RHE, CVs are not stable in 0.1 M NaOH since the absorption of hydrogen in the palladium crystal lattice is not fully reversible. However, in the presence of 10 mM glucose, a steady-state is reached within few cycles, since the adsorption of glucose further hinder hydrogen absorption process.

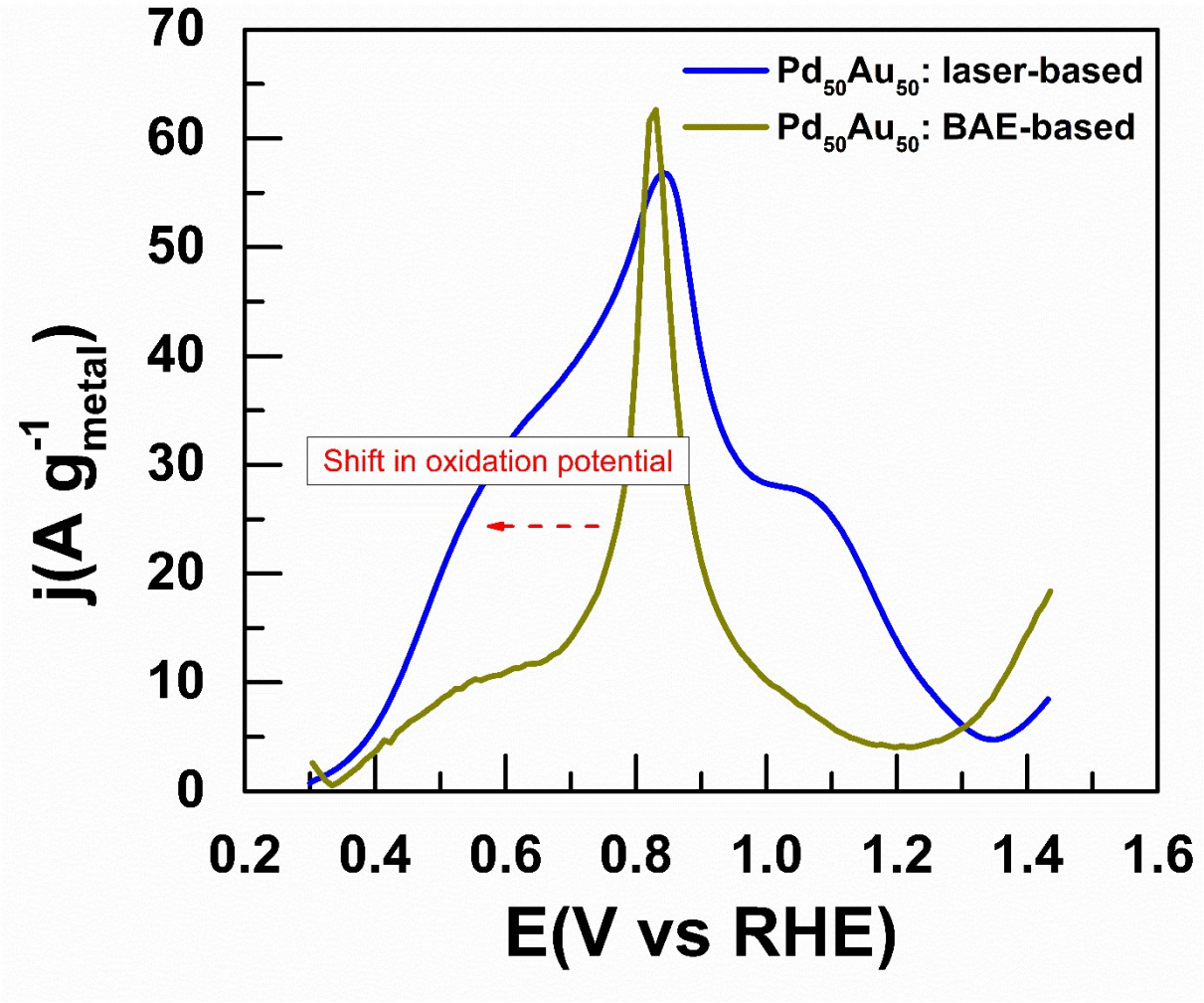

Fig. S2. Comparison of electrocatalytic performances of $Pd_{50}Au_{50}$ electrodes formed by laser-ablated NPs (blue) and NPs prepared by Bromide Anion Exchange based method (golden) recorded in 0.1 M NaOH at 20 mV s^{-1} and 20 °C in the presence of 10 mM glucose.

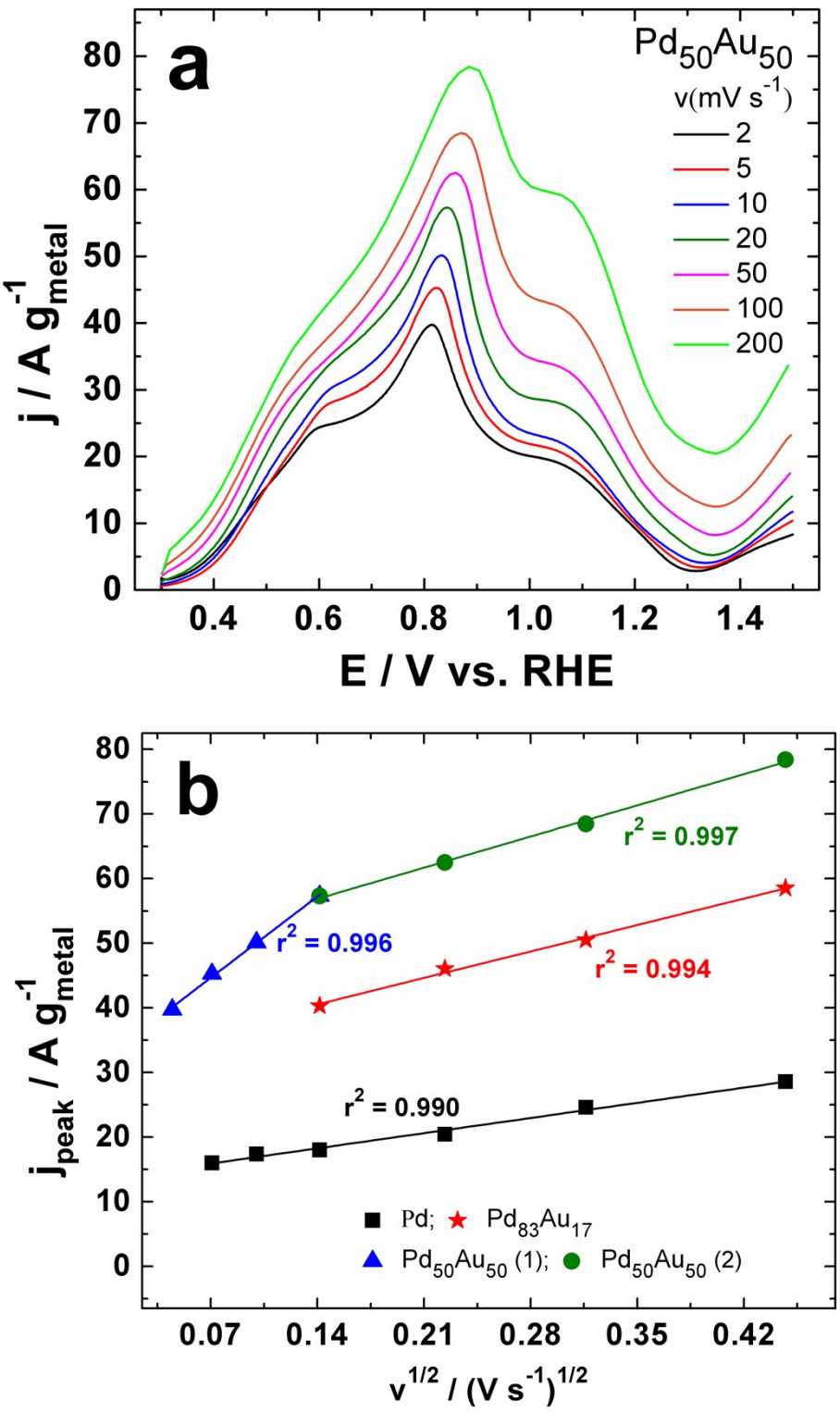

Fig. S3 (a) Polarization curves at different scan rates of $Pd_{50}Au_{50}$ electrode materials recorded in 0.1 M NaOH + 10 mM D-(+)-glucose. **(b)** Plot of j_{peak} as function of square root of scan rate for peak current density.

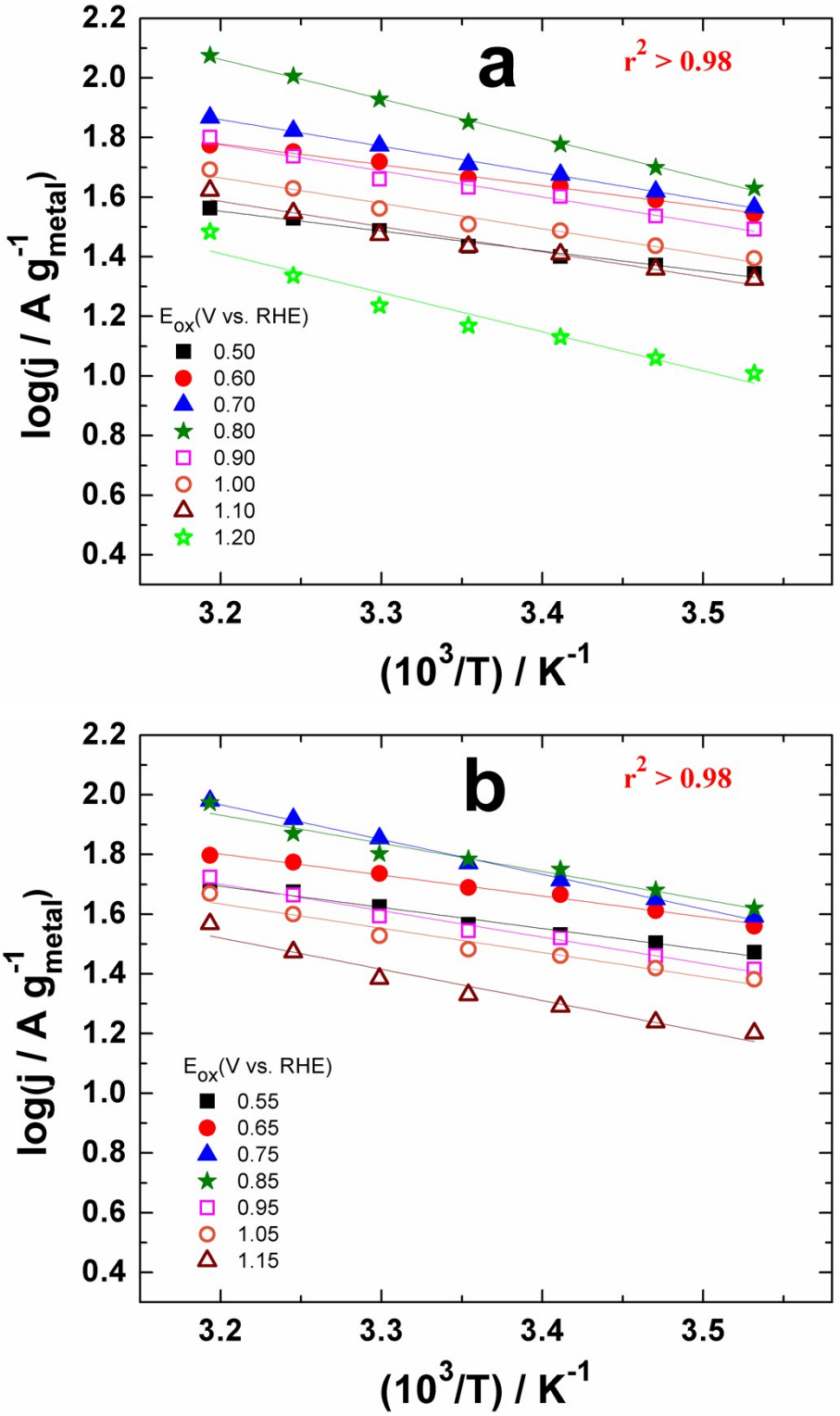

Fig. S4. Plot of log(j_{peak}) as function of 1/T on $Pd_{50}Au_{50}$ electrode material. Note: Polarization curves were recorded in 0.1 M NaOH + 10 mM D-(+)-glucose at 20 mV s^{-1}.