Supporting Information

Porous Palladium Copper Nanoparticles for Electrocatalytic Oxidation of Methanol in Direct Methanol Fuel Cells

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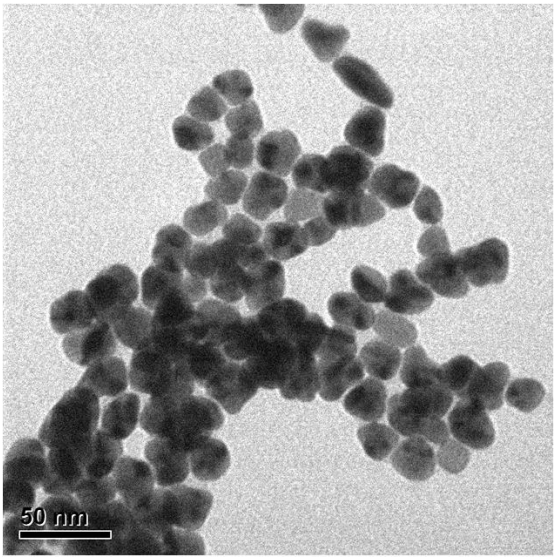

Figure S1. TEM image of the PdCu NPs prepared at Pd^{2+}/Cu^{2+} molar ratio of 10/1 for 30 min bubbling with nitrogen gas.

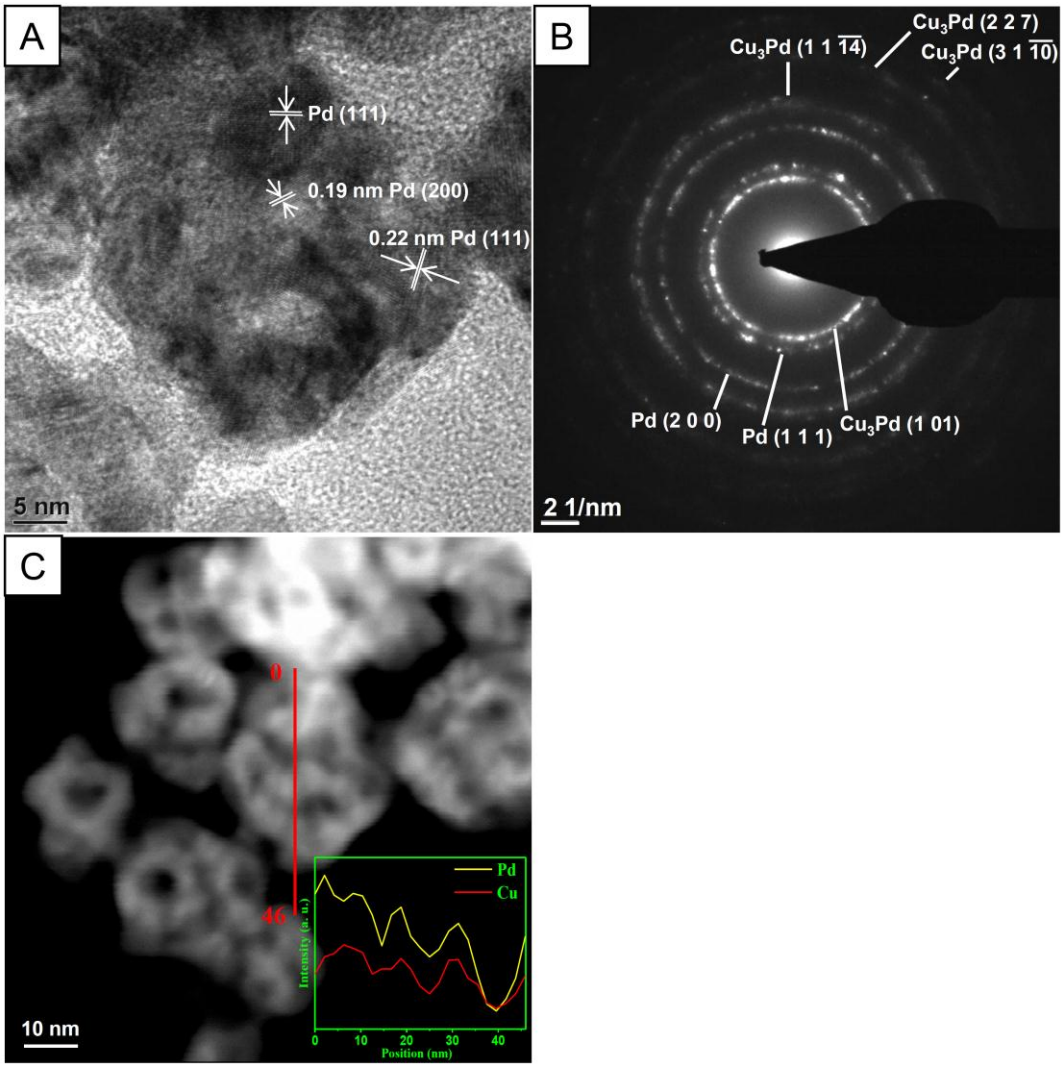

Figure S2. (A) HRTEM, (B) electron diffraction, and (C) dark-field HAADF-STEM images of the porous PdCu NPs prepared at Pd^{2+}/Cu^{2+} molar ratio of 1/10 for 30 min. Inset to (C): corresponding EDS line scan of Pd and Cu elements.

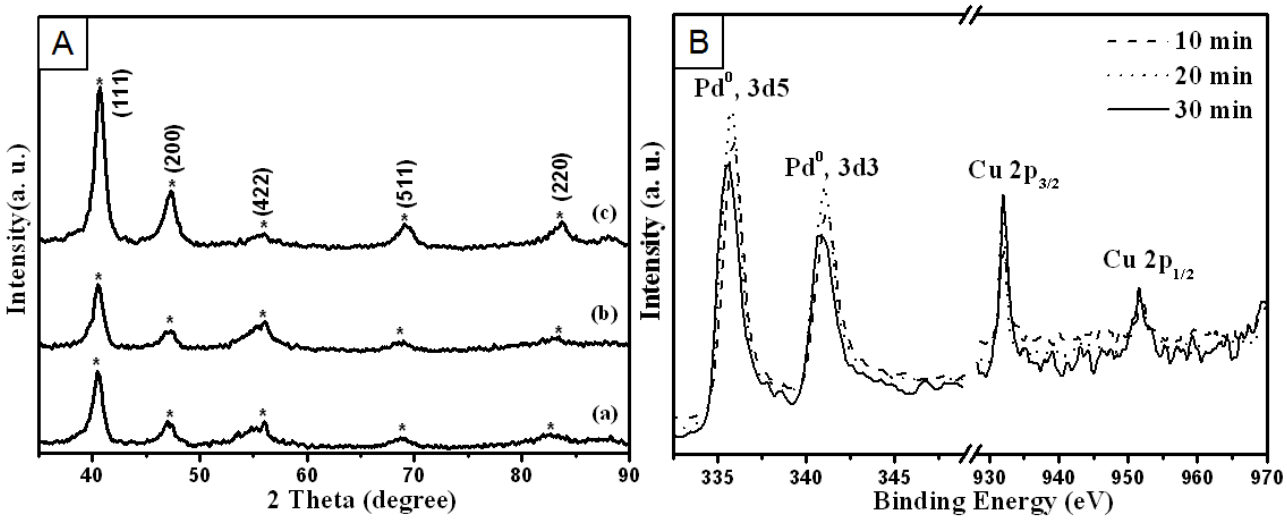

Figure S3. (A) Powder XRD patterns and (B) XPS spectra displaying the Pd 3d and Cu 2p energy levels of porous PdCu NPs prepared at Pd^{2+}/Cu^{2+} molar ratio of 1/10 for (a and dashed line) 10, (b and dotted line) 20, and (c and solid line) 30 min.

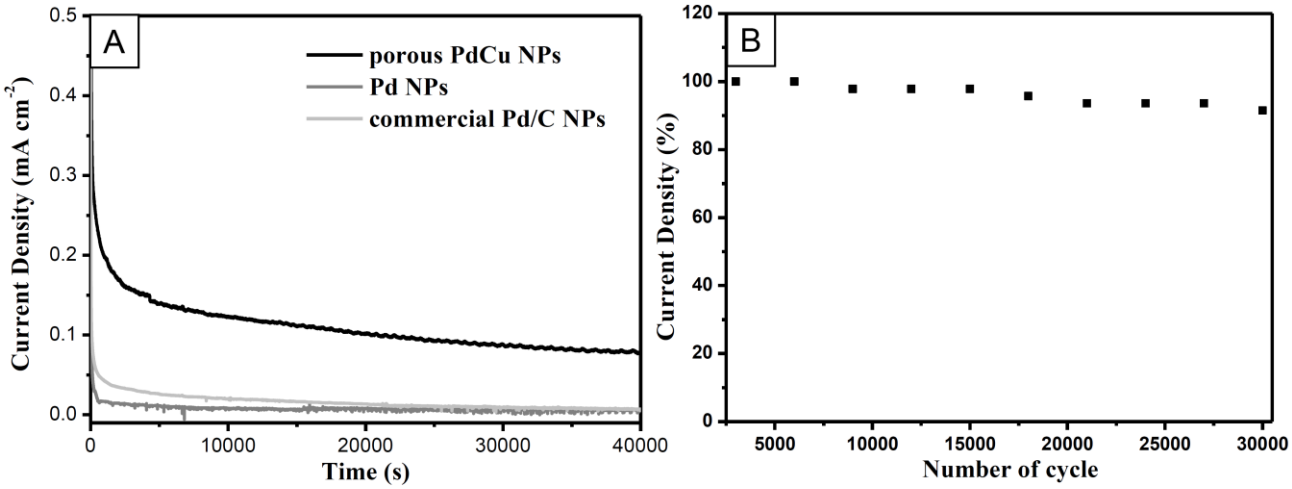

Figure S4. (A) Chronoamperometric curves of modified electrodes that were fabricated from porous PdCu NPs prepared at Pd^{2+}/Cu^{2+} molar ratio of 1/10, Pd NPs, and commercial Pd/C NPs (B) ADT for porous PdCu NPs at a scan rate of 50 mV s^{-1}. Measurements: fixed potential at –0.2 V vs. Ag/AgCl in 0.5 M KOH containing 0.5 M methanol.