Electronic Supplementary Information

One-pot synthesis of branched Palladium nanodendrites with superior electrocatalytic performance

Qiang Gao, Min-Rui Gao, Jian-Wei Liu, Meng-Yuan Chen, Chun-Hua Cui, Hui-Hui Li and Shu-Hong Yu*

Address: Division of Nanomaterials & Chemistry, Hefei National Laboratory for Physical Sciences at Microscale, Department of Chemistry, the National Synchrotron Radiation Laboratory, University of Science and Technology of China, Hefei 230026, P. R. China

Email: shyu@ustc.edu.cn

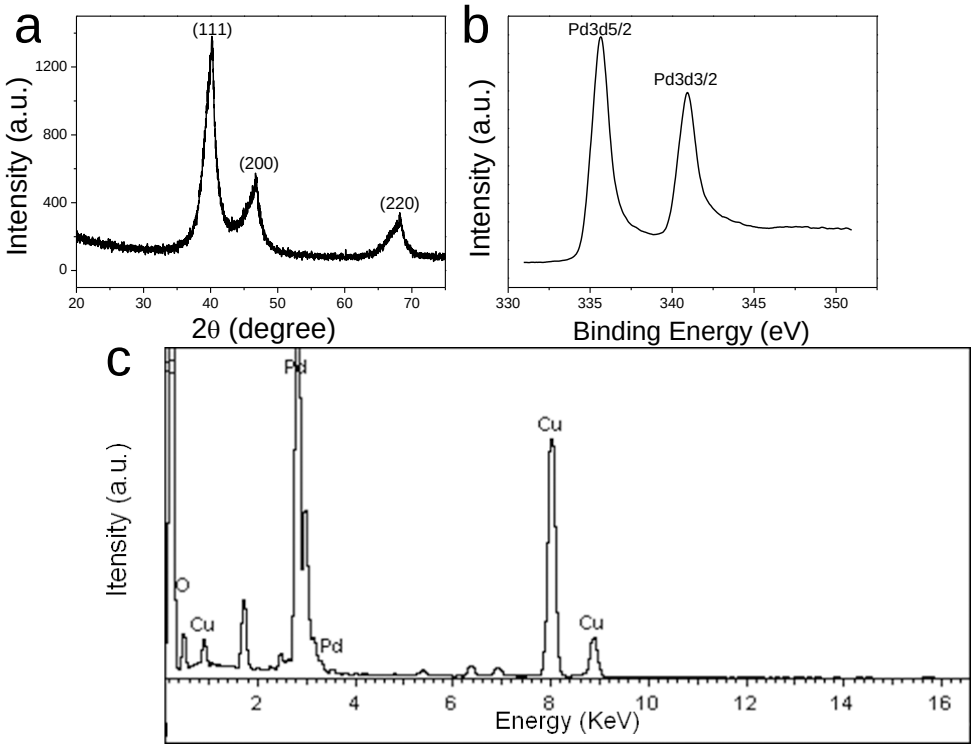

Fig. S1 (a) XRD pattern, (b) XPS spectrum, and (c) energy-disperse X-ray spectrum (EDS) of the branched Pd nanodendrites.

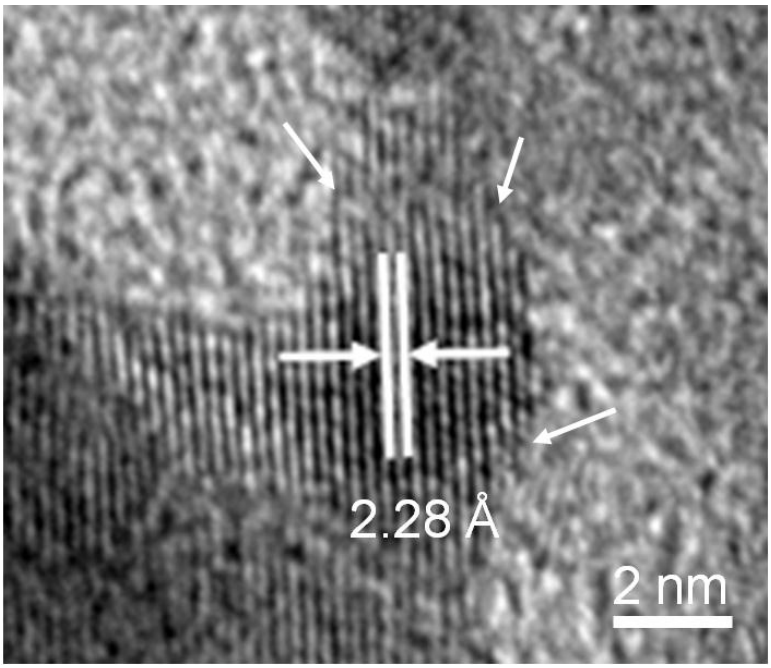

Fig. S2 The HRTEM image taken on one arm of a typical Pd nanodendrite with many atomic steps.

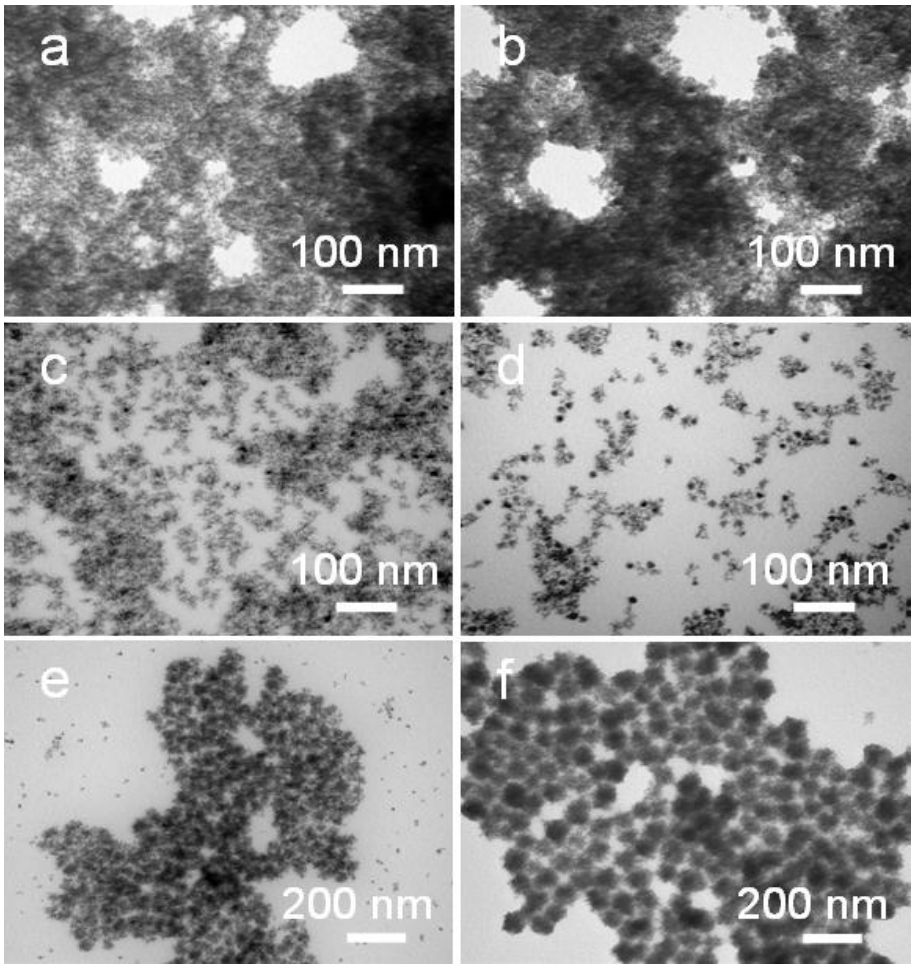

Fig. S3 TEM images of Pd nanostructures at different ratio of OAm:OA. (a) 1:4, (b) 2:3, (c) 1:1, (d) 3:2, (e) 4:1, (f) pure OAm.

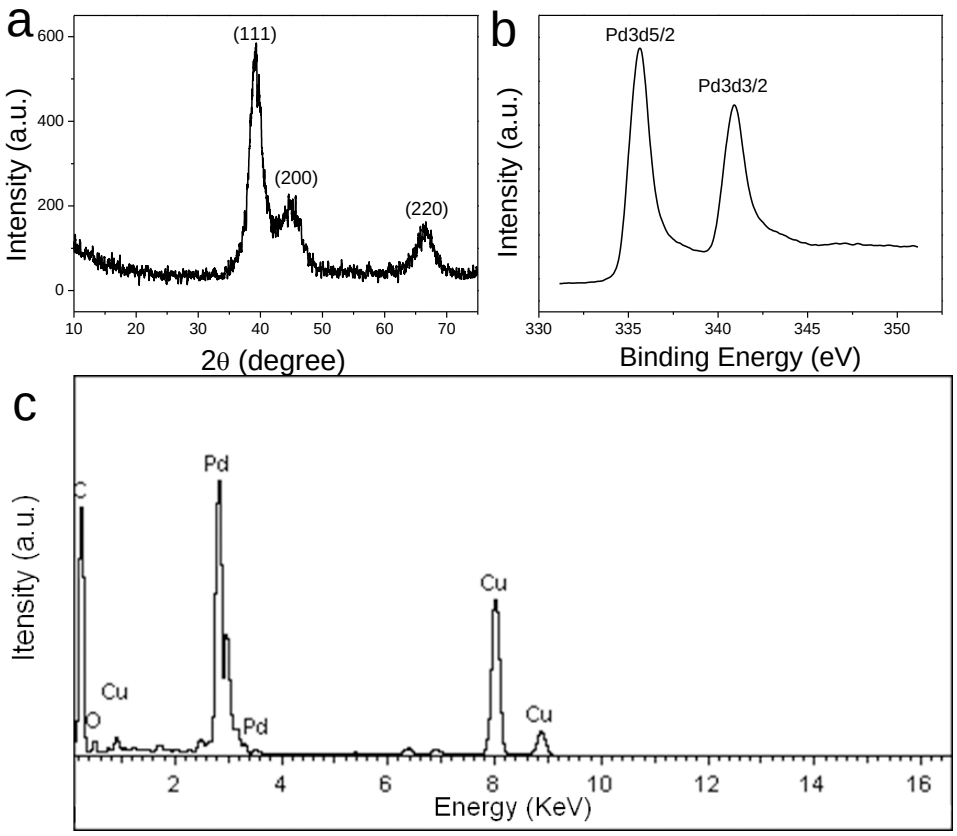

Fig. S4 (a) XRD pattern, (b) XPS spectrum, (c) energy-disperse X-ray spectrum (EDS) of the obtained porous Pd nanoflowers.

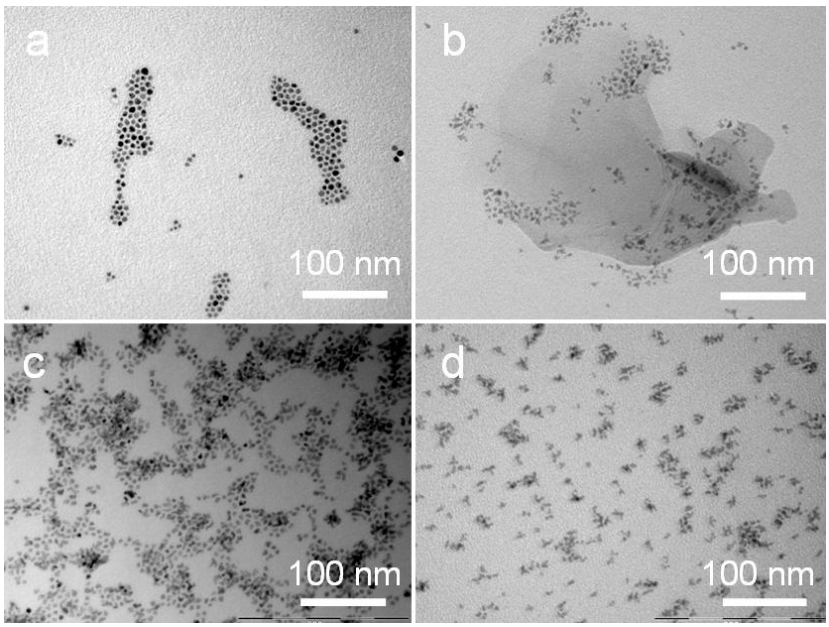

Fig. S5 TEM images showing the morphological evolution of Pd nanodendrites. (a) 5 min; (b) 15 min; (c) 30 min; (d) 60 min.

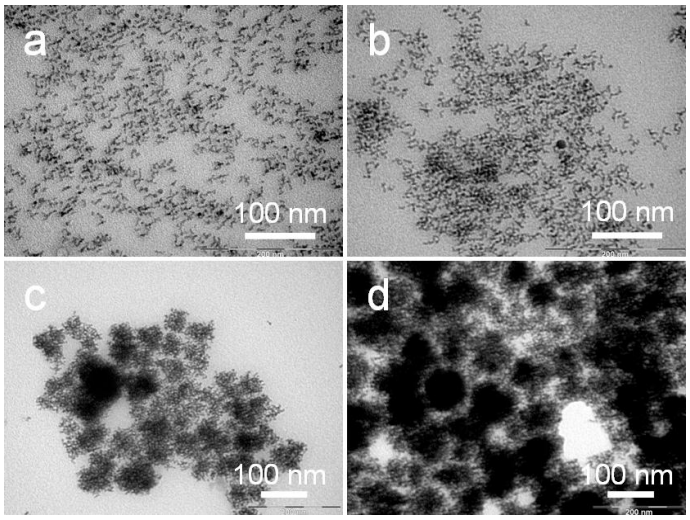

Fig. S6 TEM images showing the morphological evolution of Pd nanoflowers. (a) 1 min; (b) 5 min; (c) 10 min; (d) 30 min.

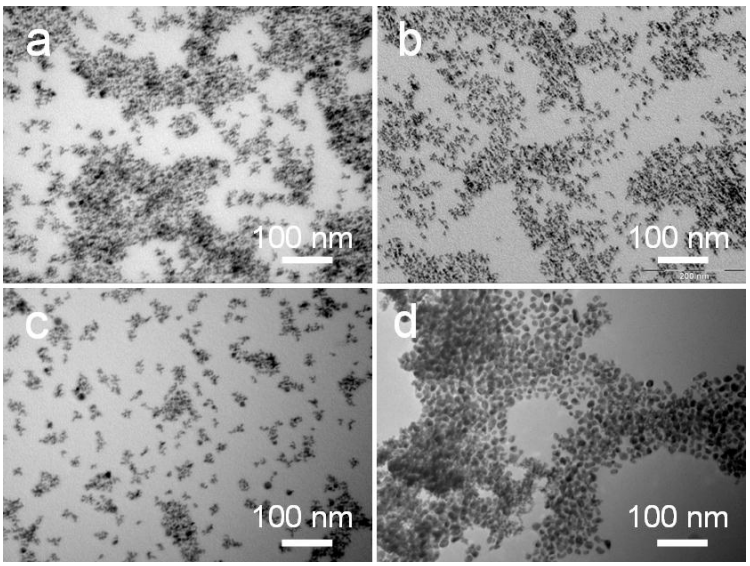

Fig. S7 TEM images of Pd nanodendrites at different temperature. (a) 160 ^{o}C; (b) 180 ^{o}C; (c) 200 ^{o}C; (d) 220 ^{o}C.

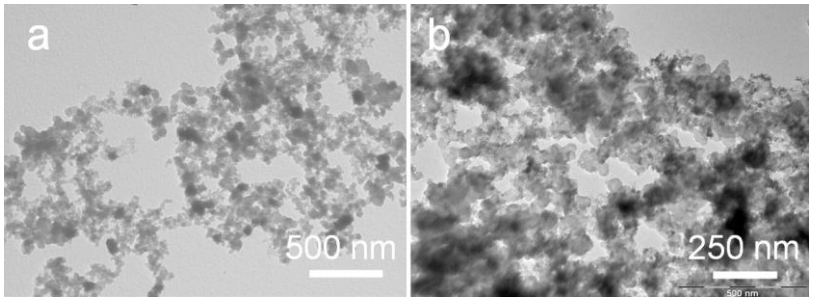

Fig. S8 (a, b) TEM images of the Pd nanoflowers and Pd nanodendrites supported on C.

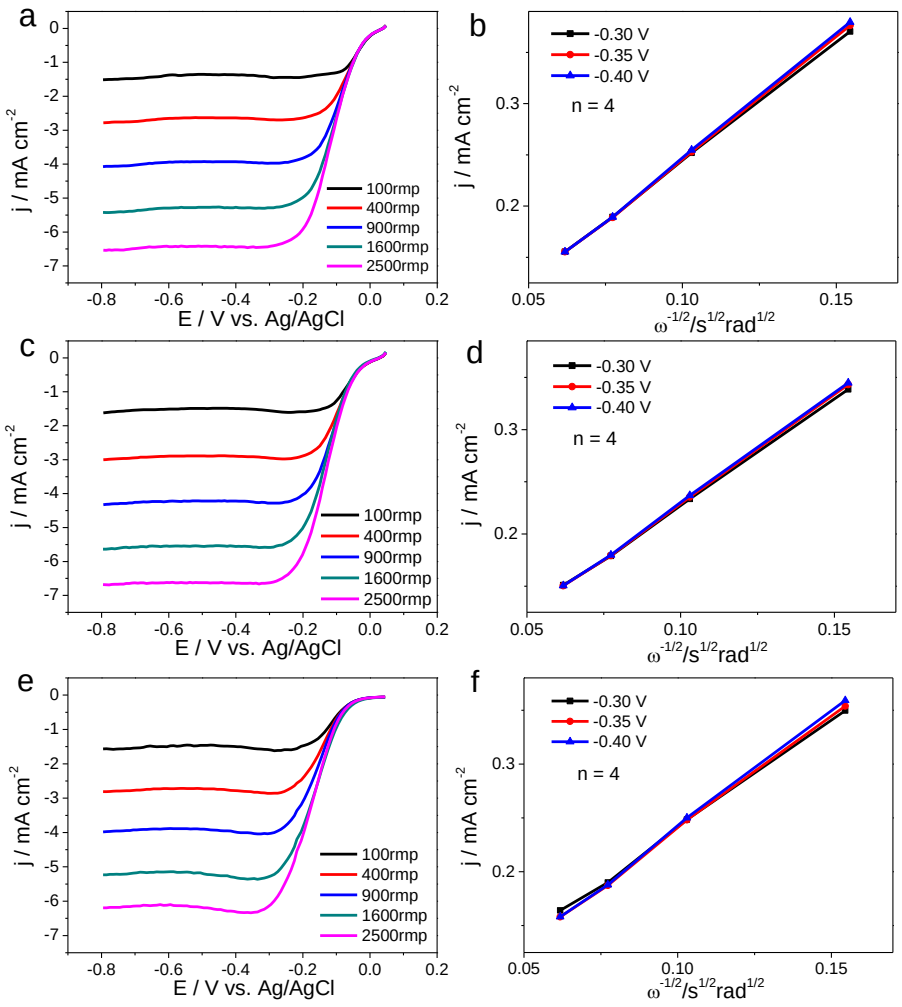

Fig. S9 ORR polarization curves for (a) Pd nanodendrites, (c) Pd nanoflowers, (e) commercial Pd/C catalysts in O_2-saturated 0.1 M KOH at room temperature with a sweep rate of 20 mV s^{-1} at different rotation rates. (b) The corresponding Koutecky-Levich plots for (b) Pd nanodendrites, (d) Pd nanoflowers, (f) commercial Pd/C catalysts at different electrode potentials, respectively.