Electronic Supplementary Information (ESI) for

One-pot synthesis of Pd@Pt core-shell nanocrystals for electrocatalysis: control of crystal morphology with polyoxometalate

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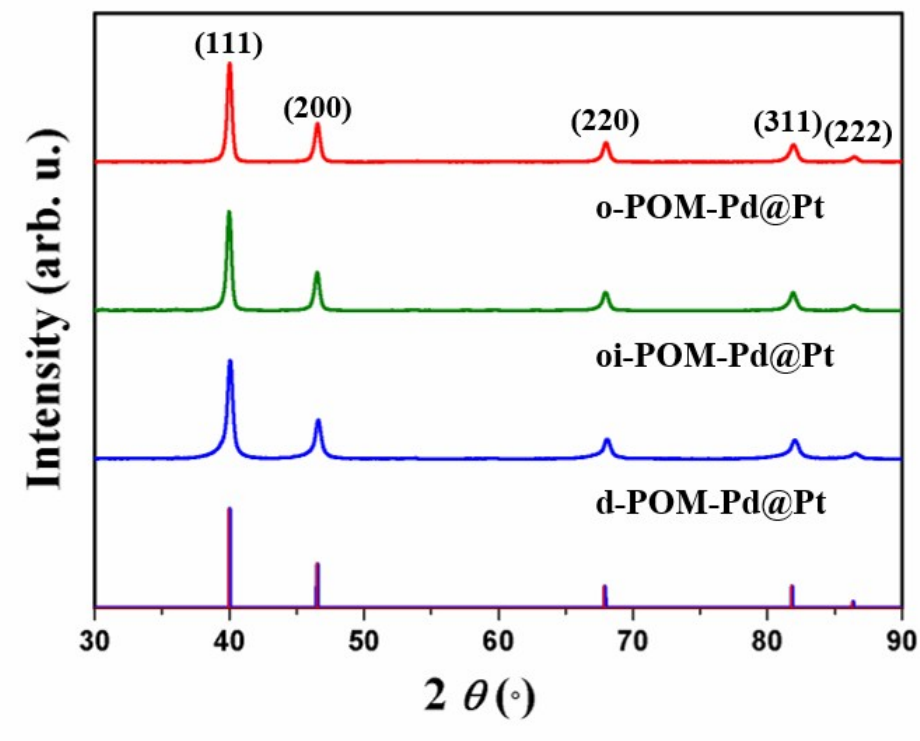

Fig. S1. XRD patterns of the o-POM-Pd@Pt, oi-POM-Pd@Pt, and d-POM-Pd@Pt NCs. The intensities and positions for pure Pd (blue lines at the bottom) and Pt (red lines at the bottom) references were taken from the JCPDS database.

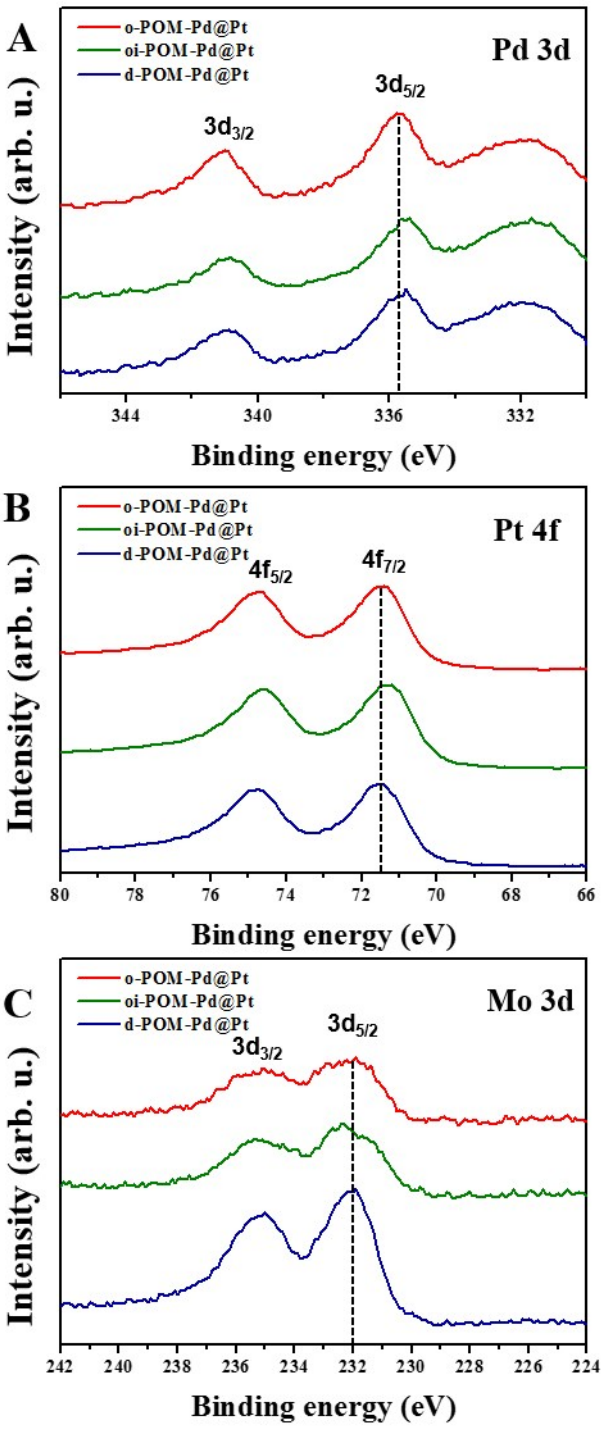

Fig. S2. XPS spectra of the o-POM-Pd@Pt, oi-POM-Pd@Pt, and d-POM-Pd@Pt NCs for (A) Pd 3d, (B) Pt 4f, and (C) Mo 3d core levels.

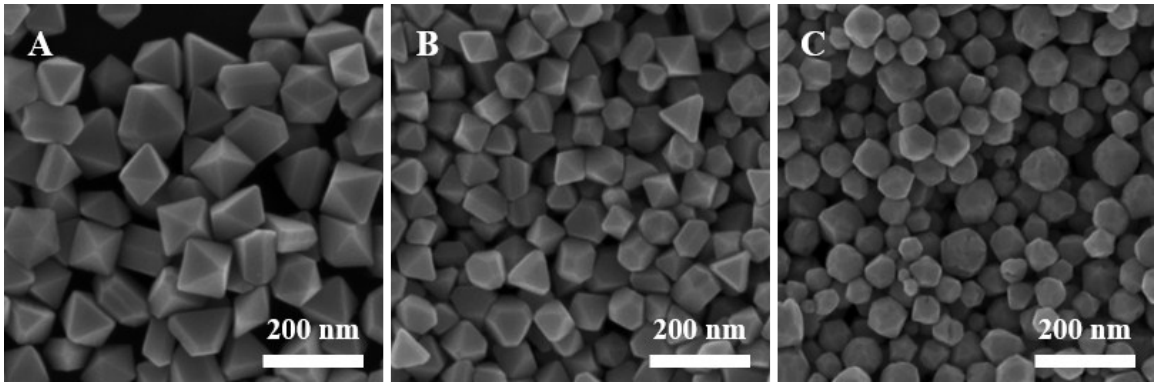

Fig. S3. SEM images of the products prepared without the Pt precursors under otherwise similar experimental conditions to those employed in the synthesis of the (A) o-POM-Pd@Pt, (B) oi-POM-Pd@Pt, and (C) d-POM-Pd@Pt NCs.

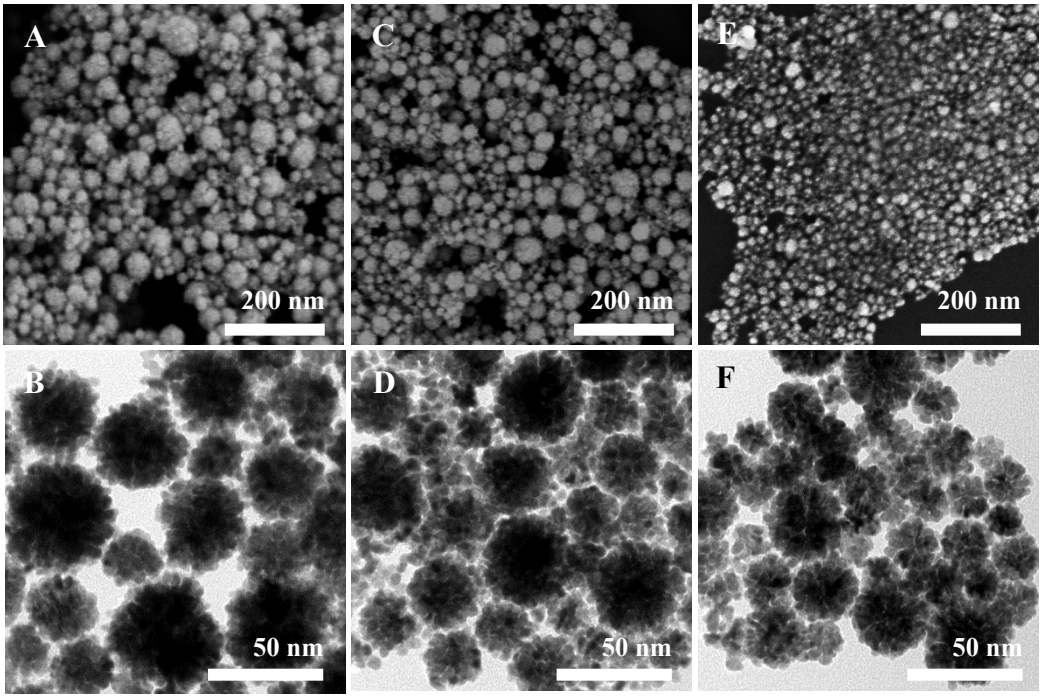

Fig. S4. (A, C, E) SEM and (B, D, F) TEM images of the products prepared using sodium citrate as a stabilizing agent instead of the POMs under otherwise similar experimental conditions to those employed in the synthesis of the (A, B) o-POM-Pd@Pt, (C, D) oi-POM-Pd@Pt, and (E, F) d-POM-Pd@Pt NCs.

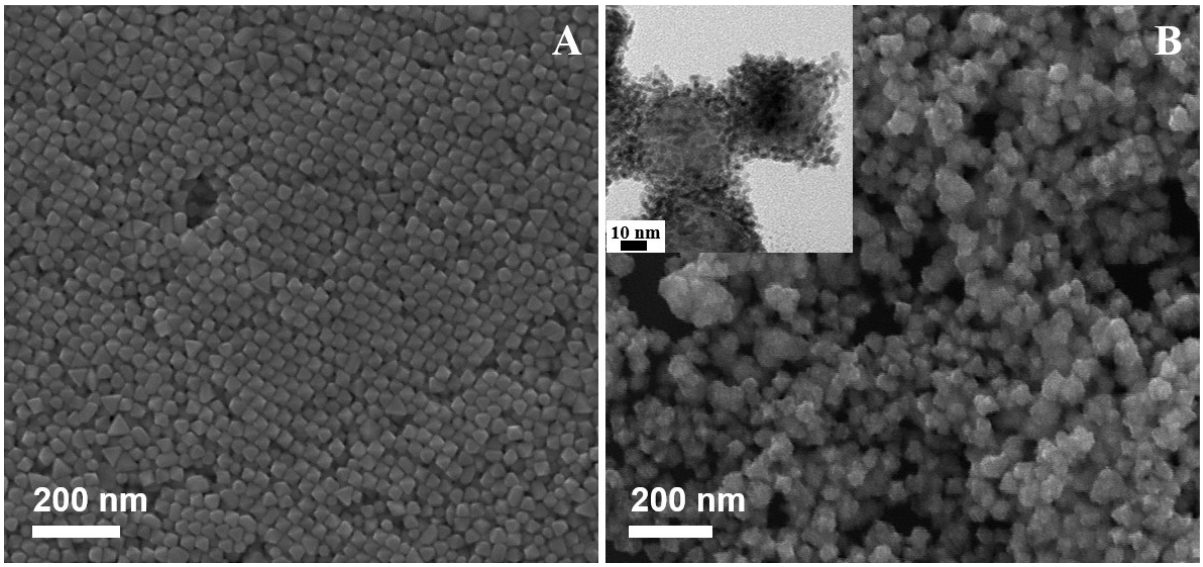

Fig. S5. SEM images of the (A) octahedral Pd NC seeds and (B) d-Pd@Pt NCs. TEM image of the d-Pd@Pt NCs is shown in the inset of (B). The average edge lengths of the octahedral Pd NC seeds and the d-Pd@Pt NCs were 35 and 51 nm, respectively.

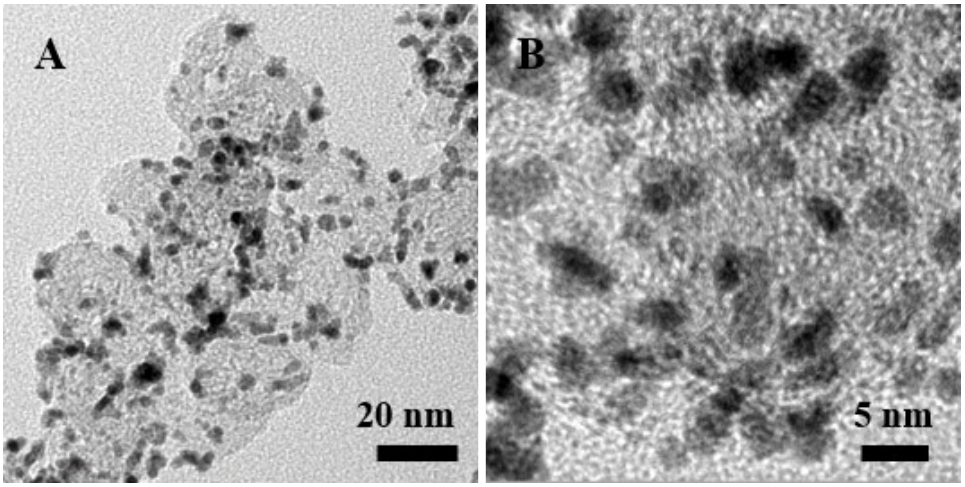

Fig. S6. (A) Low- and (B) high-magnification TEM images of the commercial Pt/C catalyst. The average Pt particle size of the Pt/C was 5 nm.

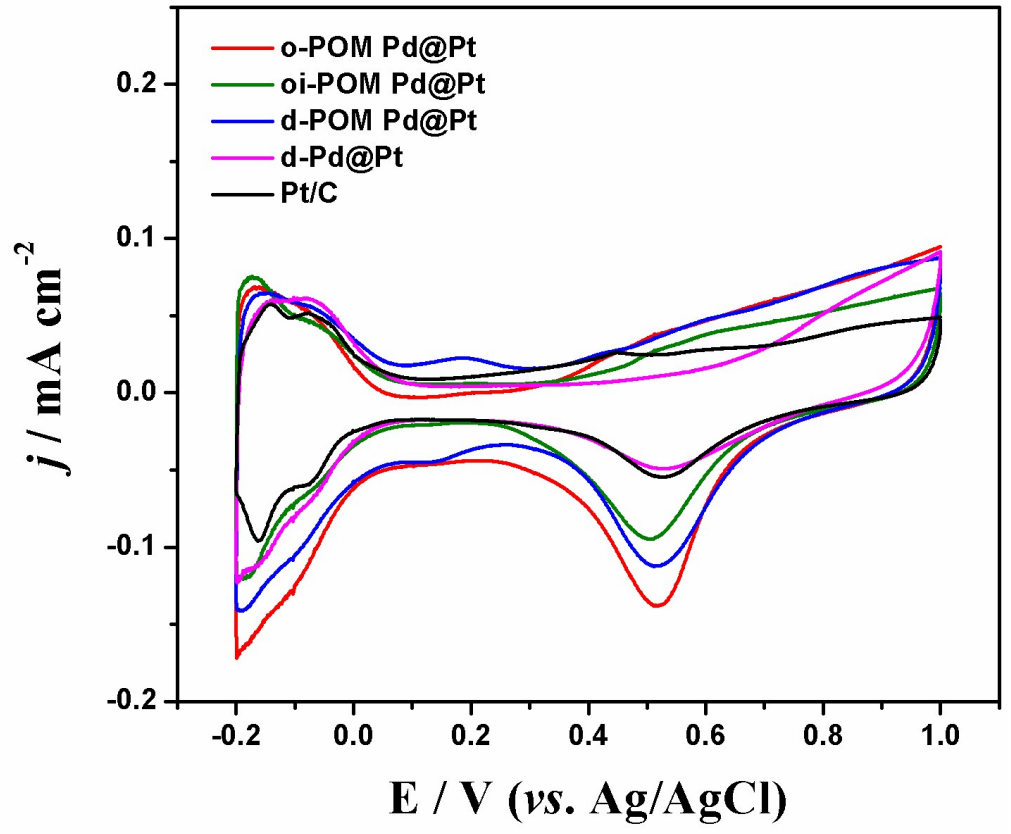

Fig. S7. CVs obtained with the various catalysts in 0.1 M $HClO_4$ at a scan rate of 50 mVs^{-1}. The current values were normalized to the ECSAs of the catalysts.

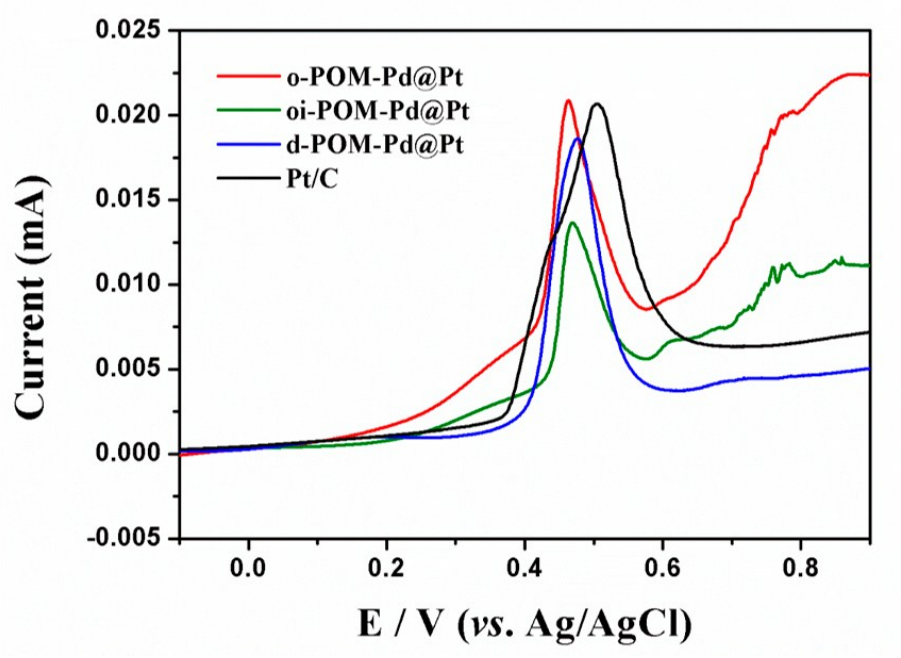

Fig. S8. CO-stripping voltammograms obtained with the various catalysts in 0.1 M $HClO_4$ at a scan rate of 20 mV s^{-1}.