Supporting Information

Green One-Pot Synthesis of Bimetallic Pd-Pt Nanosponges using Biomolecules with Enhanced Catalytic Activity for Hydrogen Evolution Reactions

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Table S1. EDX quantification of Pd-Pt(1) nanosponges.

Element	Weight %	Atomic %	Uncert. %	Detector Correction	k-Factor
Pd(K)	85.72	91.67	0.99	0.98	5.495
Pt(L)	14.27	8.32	0.35	0.75	5.269

Table S2. EDX quantification of Pd-Pt(2) nanosponges.

Element	Weight %	Atomic %	Uncert. %	Detector Correction	k-Factor
Pd(K)	81.69	89.10	0.99	0.98	5.495
Pt(L)	18.30	10.89	0.29	0.75	5.269

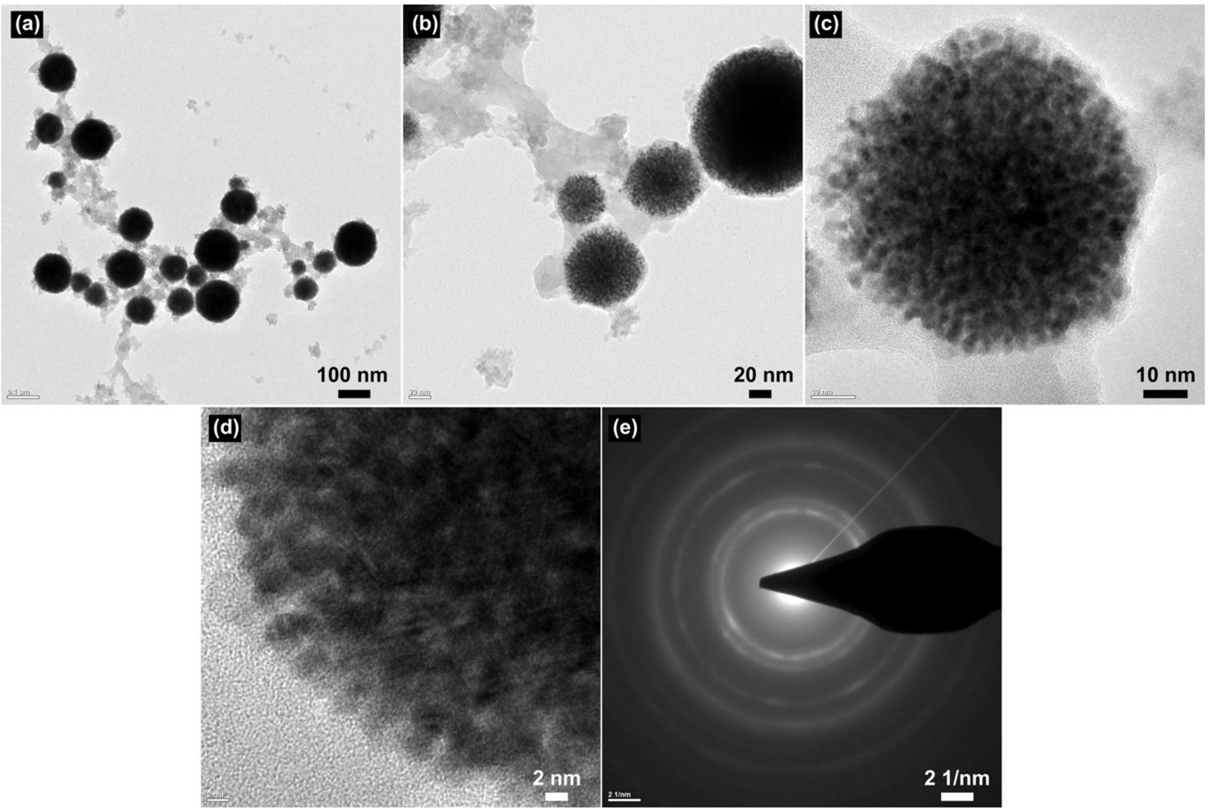

Fig. S1. Characterization of Pt (1) nanosponges synthesized in the presence of 5 mg RNA. (a–c) TEM images of the Pt (1) nanosponges. (d) HRTEM image of the Pt (1) nanosponges showing the crystalline planes of particles and (e) the SAED pattern of the Pt (1) nanoparticles.

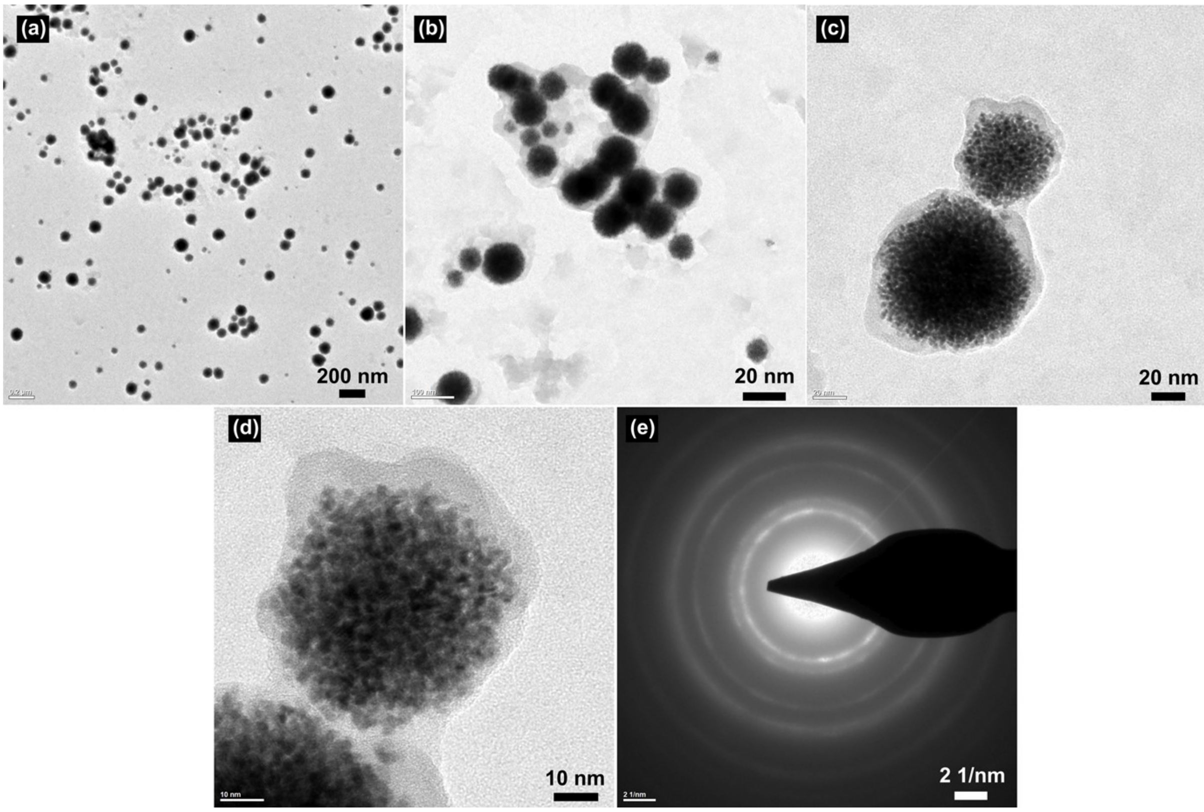

Fig. S2. Characterization of Pt (2) nanosponges synthesized in the presence of 10 mg RNA. (a–d) TEM images of the Pt (2) nanosponges. (e) The SAED pattern of the Pt (2) nanoparticles.

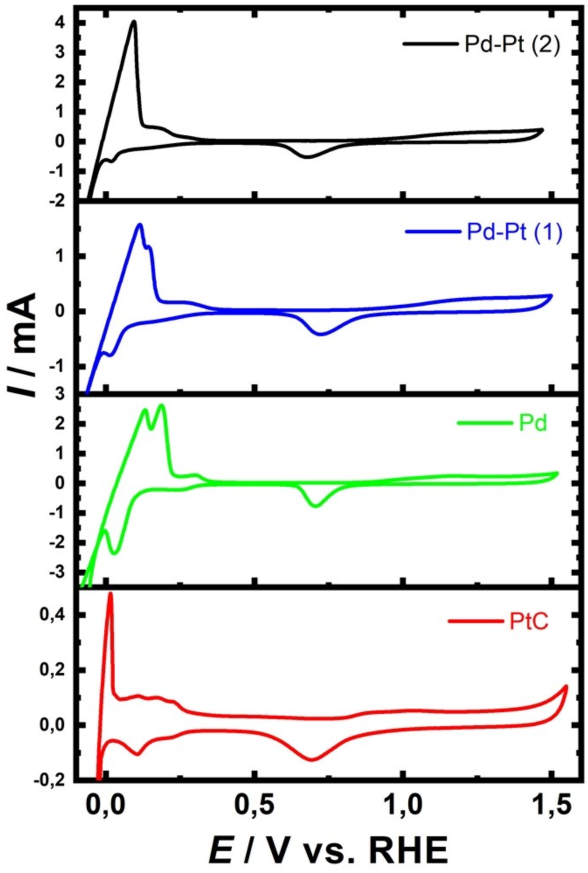

Fig. S3. The typical characteristic CV obtained with Pd-Pt(1), Pd-Pt(2), Pd, and Pt/C in N_2 saturated H_2SO_4 at 10 mV s^{-1}.

Table S3. Comparison of the Pd-Pt catalysts used for hydrogen evolution reactions.

Materials	Overpotential	Current density mA/cm^2	Tafel slope mV dec^{-1}	Electrolyte	Stability	Ref
Pd-Pt-s	71 mV	10	31	0.1 M KOH	-	[1]
Pt–Pd–rGO	791 mV	300	10-29	0.5 M H_2SO_4	-	[2]
Pd/Cu-Pt	22.8 mV	10	25	0.5 M H_2SO_4	-	[3]
Pd/SnTe	86 mV	10	29.14	0.5 M H_2SO_4	1000 CV cycles	[4]

Pd	60 mV	10	25	0.5 M H_2SO_4	4000 CV cycles + 6 h CA	This work
Pt/C	41.5 mV	10	28			
Pd-Pt (1)	61 mV	10	39			
Pd-Pt (2)	40 mV	10	29			

References.

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