Supporting Information for

One-Pot Synthesis of Pt Hollow Spheres and Their Performance on Electrochemical Catalysis

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Fig. S1. TEM image of Pt hollow spheres

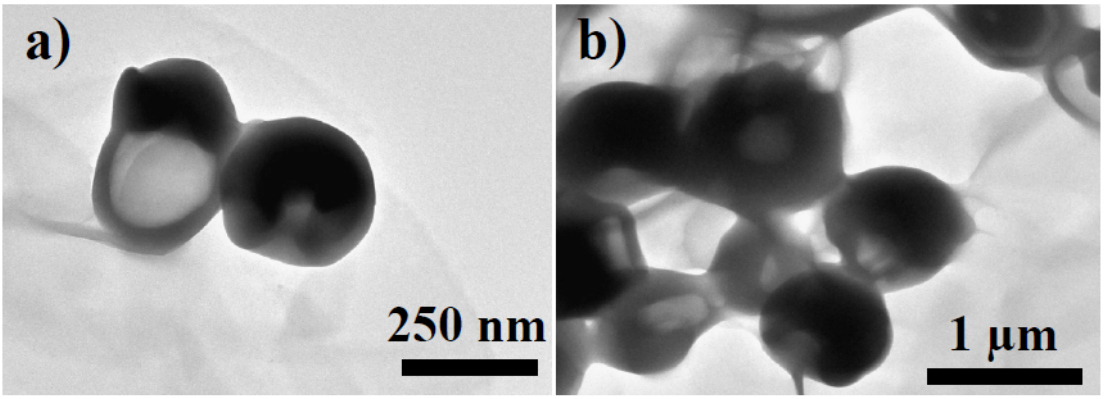


Fig. S1. TEM images of Pt hollow microspheres: (a) is obtained with 0.25 mM C18N3 and (b) is obtained with 0.125 mM C18N3.

S2. Calculation of surface area of Pt hollow spheres

According to the formula of $V_m = \frac{4}{3}\pi r^3$, the pore volume of the two Pt hollow spheres is 4.6×10^{-18} m^3 and 1.3×10^{-18} m^3, and porosity of the two Pt hollow spheres is about 72% and 62%, respectively. The total surface area (inner surface area + outer surface area) of the two Pt hollow spheres can also be calculated by $S = 4\pi r^2$, which is 2.4×10^{-11} m^2 and 1.1×10^{-11} m^2, respectively. Taking the big Pt hollow spheres as an example, about 3.6 Pt hollow spheres would be equal weight with 1 Pt microsphere if they have equal volume. The surface area for Pt microsphere is 1.3×10^{-11} m^2, but for equal weight of Pt hollow spheres, the total surface area is 8.6×10^{-11} m^2, which is 6.6-fold higher than that of Pt microsphere.

Fig. S3. SEM images of Pt hollow spheres obtained with different surfactant (C18N3) concentration.

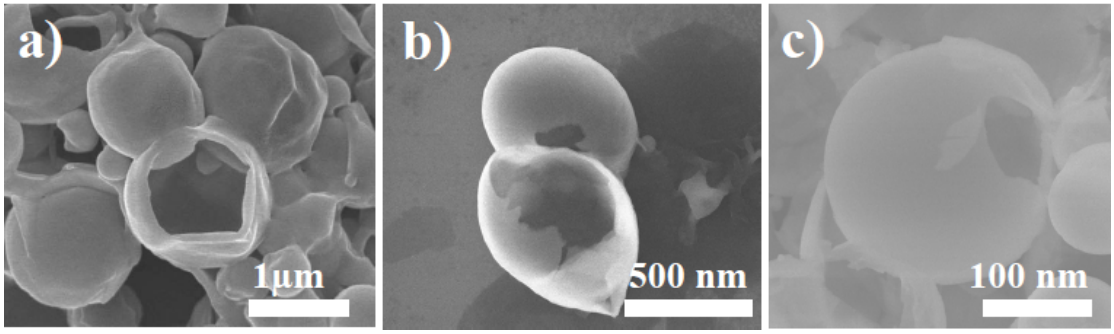


Fig. S3. SEM images of Pt hollow microspheres: obtained with various concentration of C18N3: (a) 1 mM, (b) 0.5 mM and (c) 0.125 mM C18N3.

Fig. S4. SEM images and EDX analysis of the vesicle-K_2PtCl_4 complexes.

To do the SEM and EDX analysis, the vesicle-K_2PtCl_4 complexes were dropped onto a Si wafer and dried at room temperature.

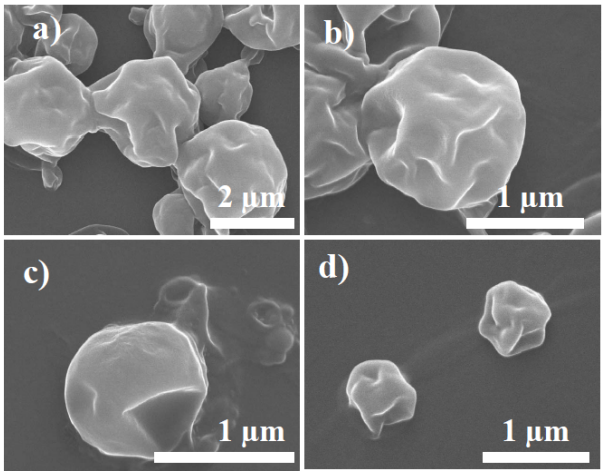
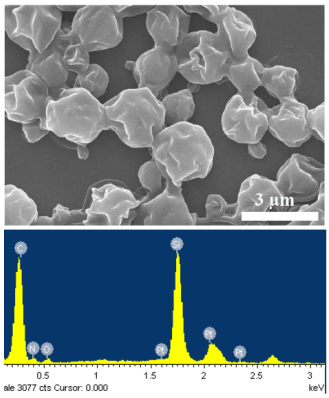


Fig. S4. SEM images of the vesicle-K_2PtCl_4 complexes obtained with various concentrations of C18N3: (a) 2 mM, (b) 1 mM, (c) 0.5 mM and (c) 0.25 mM.



Element	Weight%	Atomic%
C K	51.12	72.35
N K	8.83	10.71
O K	2.59	2.75
Si K	21.09	12.76
Pt M	16.38	1.43
Totals	100.00	100.00

Fig. S5. SEM image of Pt nanoparticles.

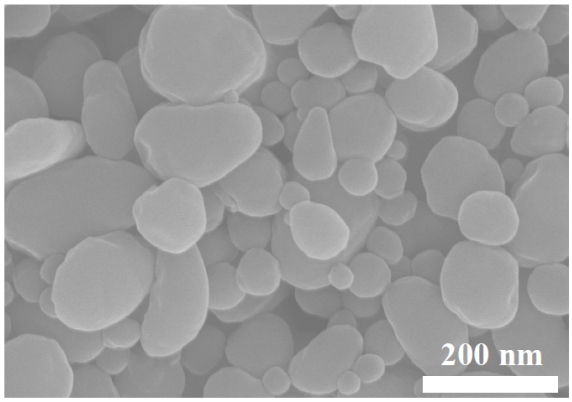


Fig. S5. SEM image of Pt hollow spheres obtained with 2 mM C18N3 and 0.4 mM K_2PtCl_4, heating at 80 ^{o}C.