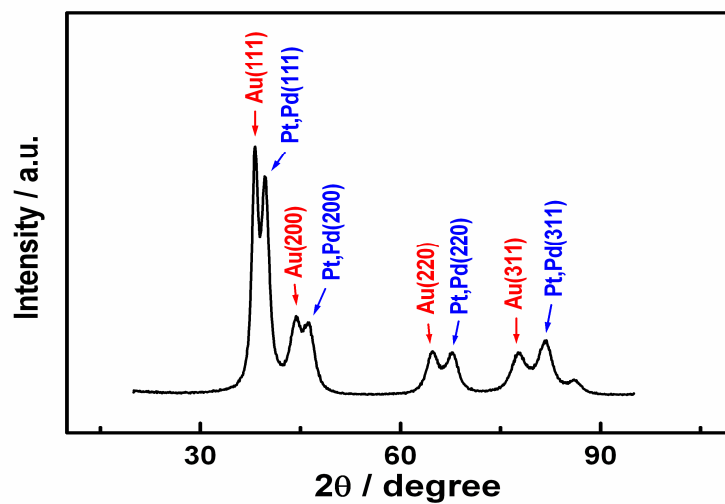
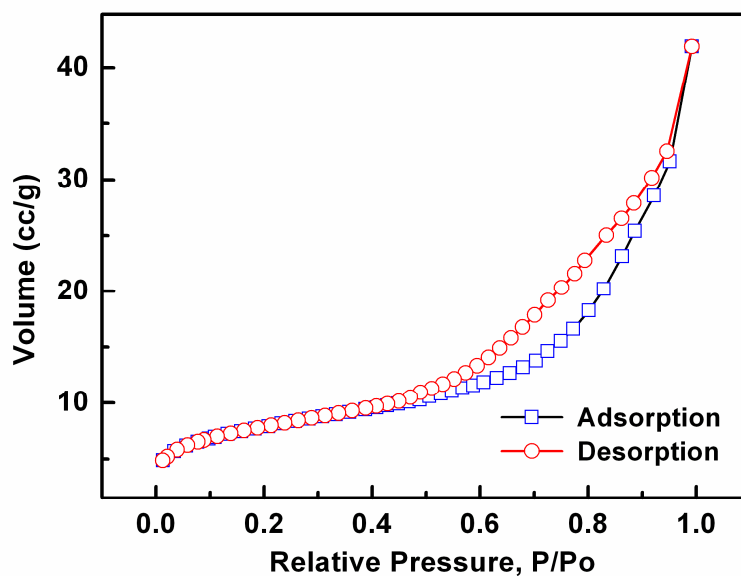


**Figure S1**



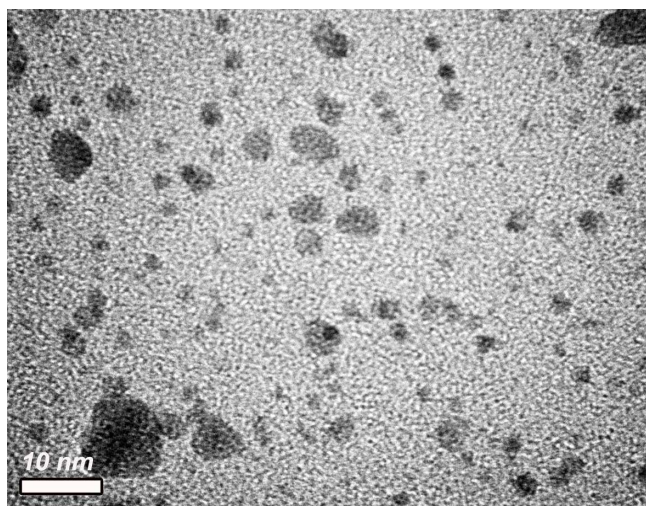
**Figure S1** Wide-angle XRD pattern of the Au@Pd@Pt triple-layered core-shell structured nanoparticles.

**Figure S2**



**Figure S2** N<sub>2</sub> adsorption-desorption isotherm of the Au@Pd@Pt triple-layered core-shell structured nanoparticles.

**Figure S3**



**Figure S3** TEM image of the nanostructures prepared by using binary Pd (0.05 mmol)-Pt (0.05 mmol) precursors.