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Amphiphilic hyperbranched copolymers bearing a hyperbranched core and dendritic shell as novel stabilizers rendering gold nanoparticles unprecedentedly long lifetime in the catalytic reduction of 4-nitrophenol

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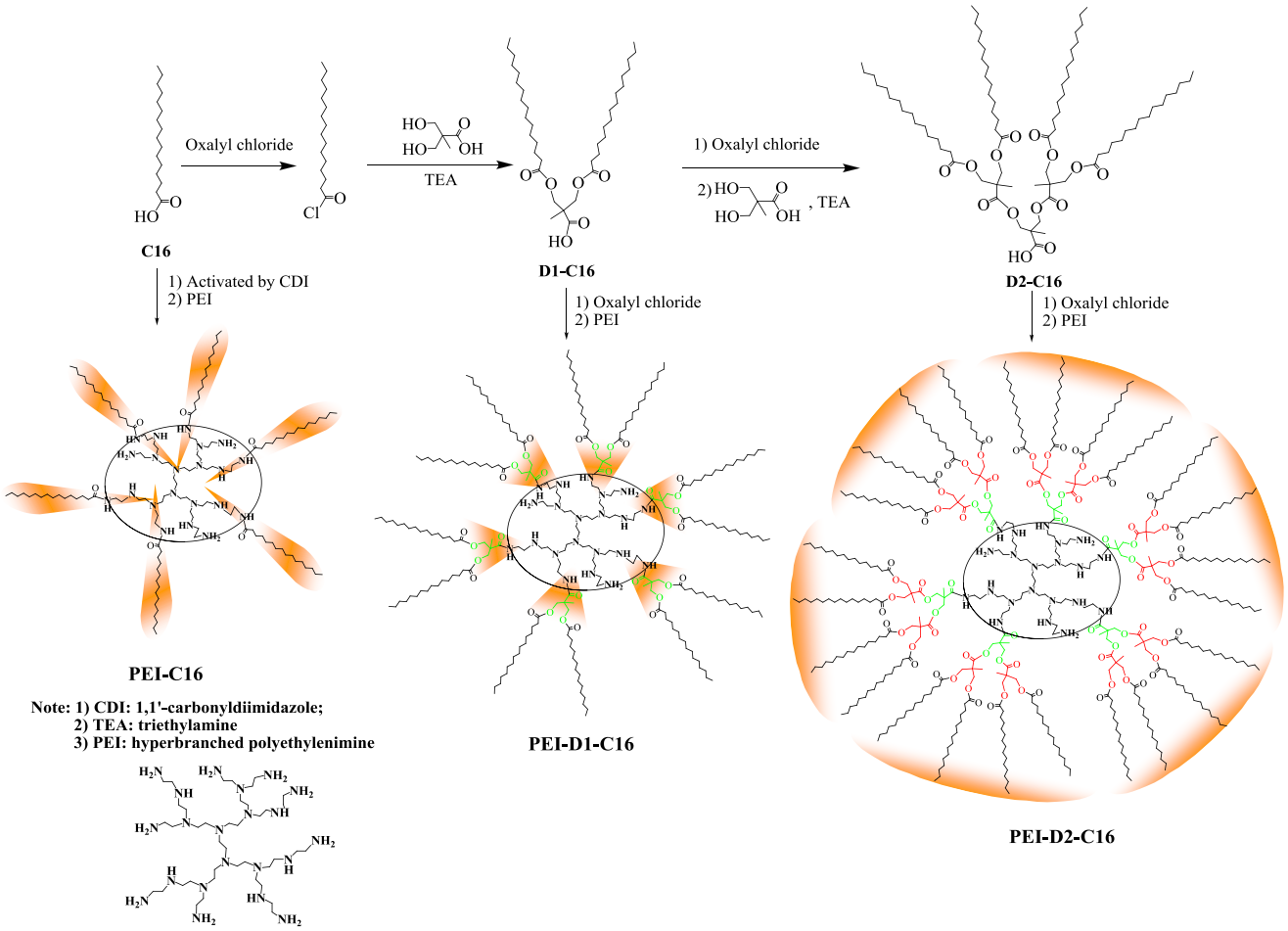

Fig. S1 Syntheses of amphiphilic copolymers with hydrophilic amidated PEI core and hydrophobic linear or branched shell

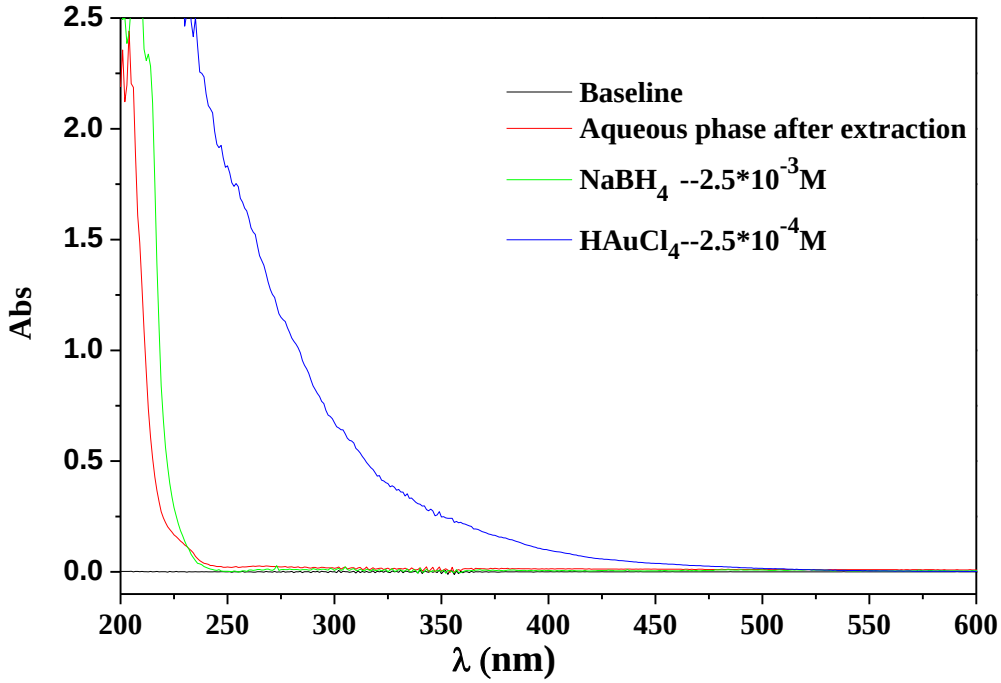

Fig. S2 The typical UV-vis absorbance spectra of $HAuCl_4$ in water, $NaBH_4$ in water and the water that has been used to extract the organic solution of AuNPs stabilized by the amphiphilic hyperbranched copolymers

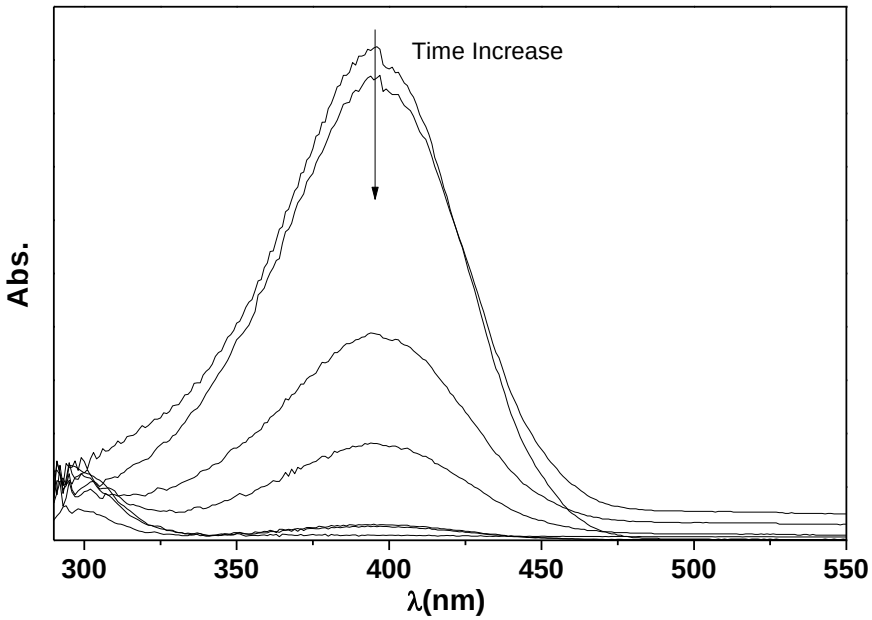

Fig. S3 The typical UV-vis absorbance spectra of the AuNP catalyzed reduction of 4-nitrophenol by $NaBH_4$

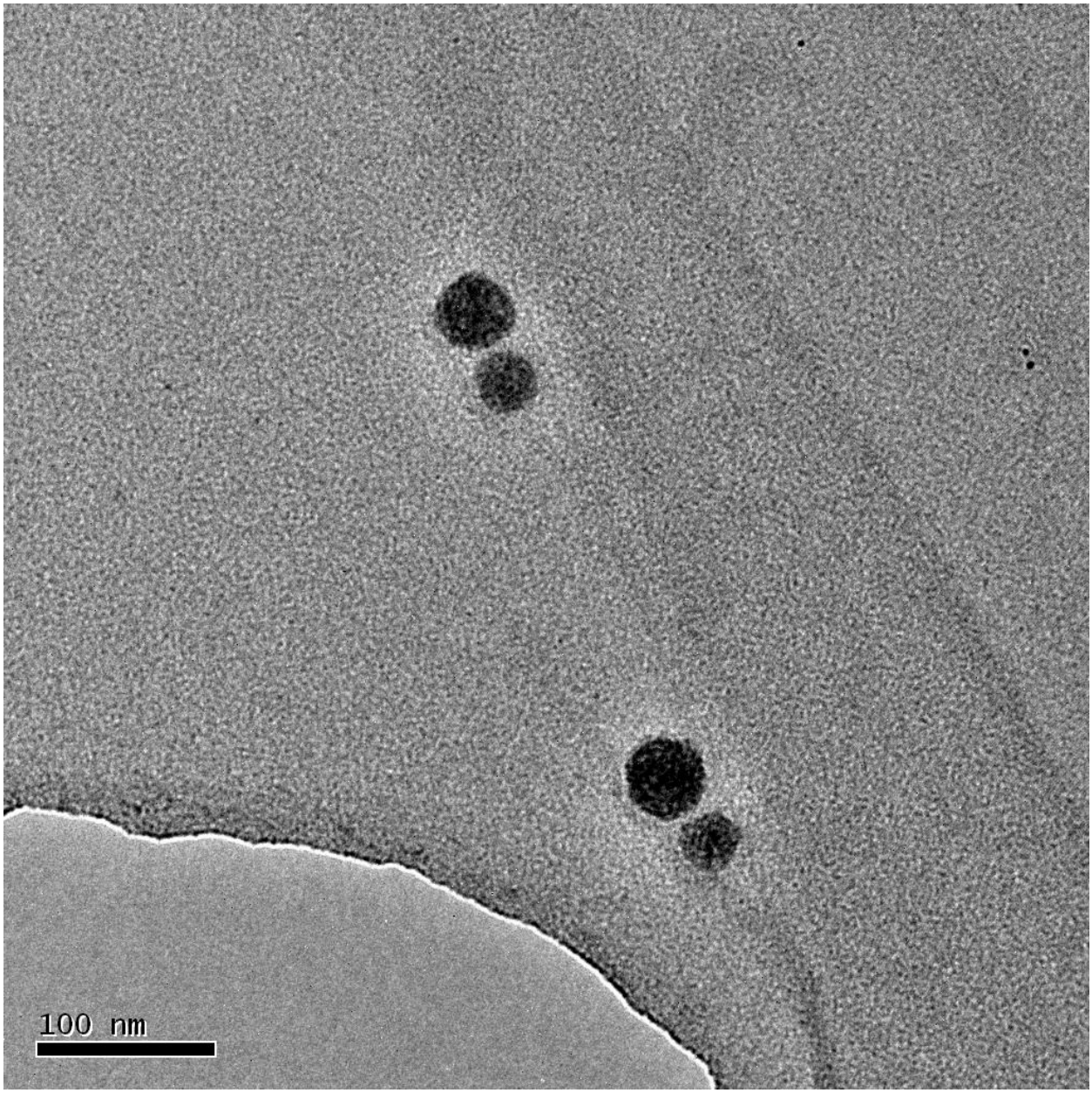

Fig. S4 Typical TEM image of gold nanoparticles showing very less catalytic activity after reusing certain times