Supporting Information

A Catch-Release Catalysis System Based on Supramolecular Host-Guest Interactions

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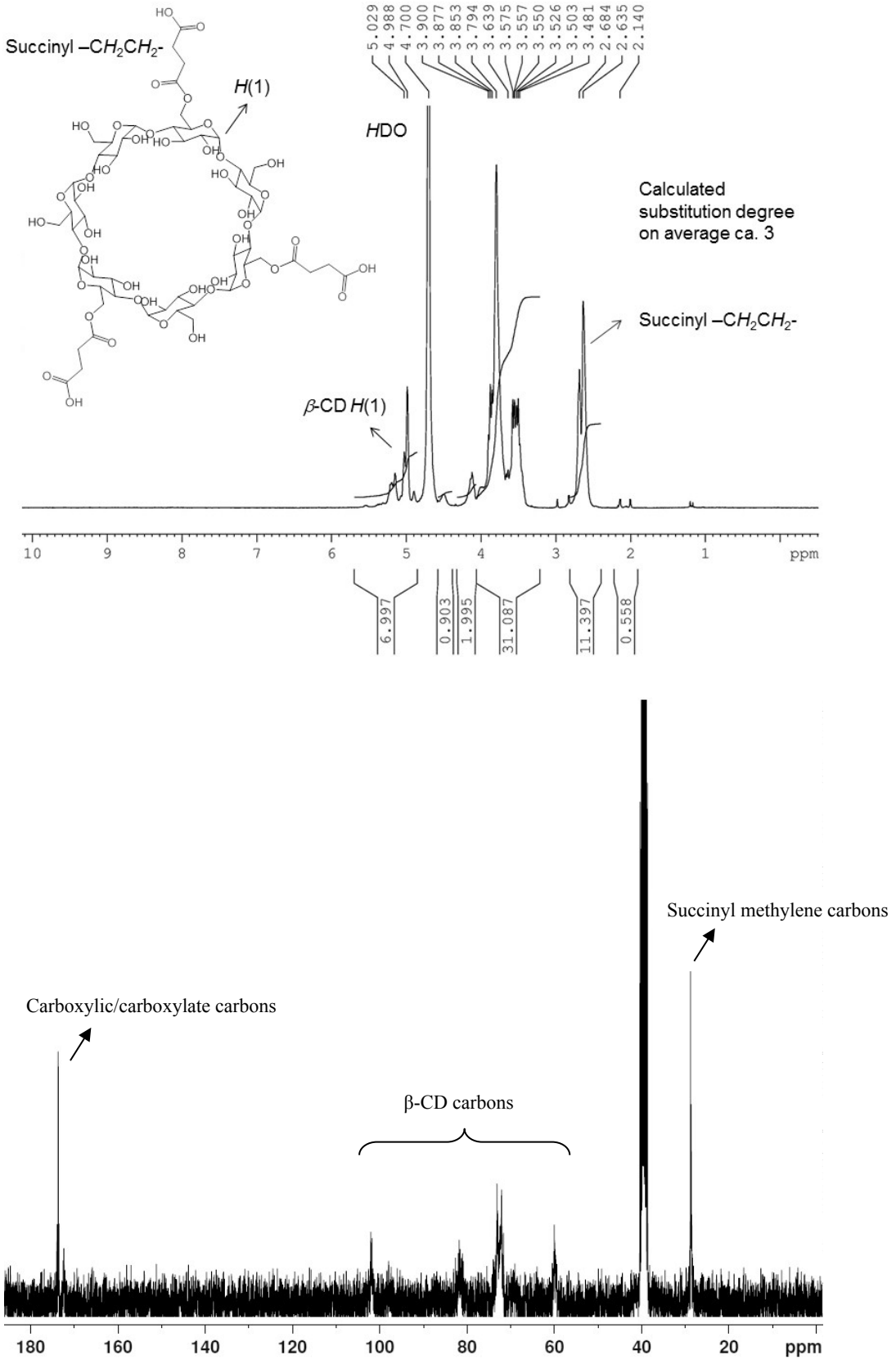

Figure S1. (Top) ^{1}H NMR spectrum of carboxyl-β-CD (β-CD-COOH) in D_2O (300 MHz, 25 ^{o}C); (bottom) ^{13}C NMR spectrum of β-CD-COOH in DMSO-d_6 (75.5 MHz, 25 ^{o}C).

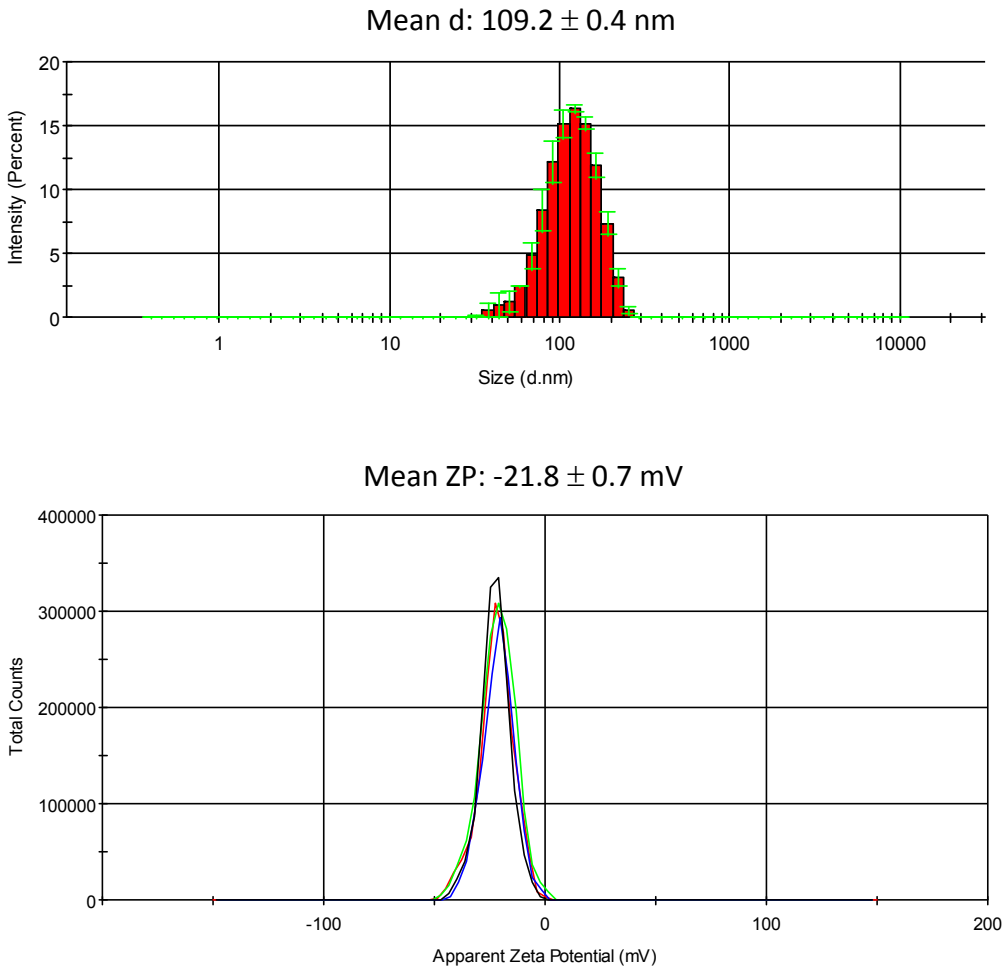

Figure S2. (Top) Representative histogram showing the size distribution of β-CD coated Fe_3O_4 magnetic nanoparticles (β-CD-MNP) by DLS at room temperature in water (0.1 mg/mL, pH 6.0, at least 3 individual measurements); (bottom) Zeta potential measurement for β-CD-MNP by DLS at room temperature in water (0.1 mg/mL, pH 6.0, at least 3 individual measurements).

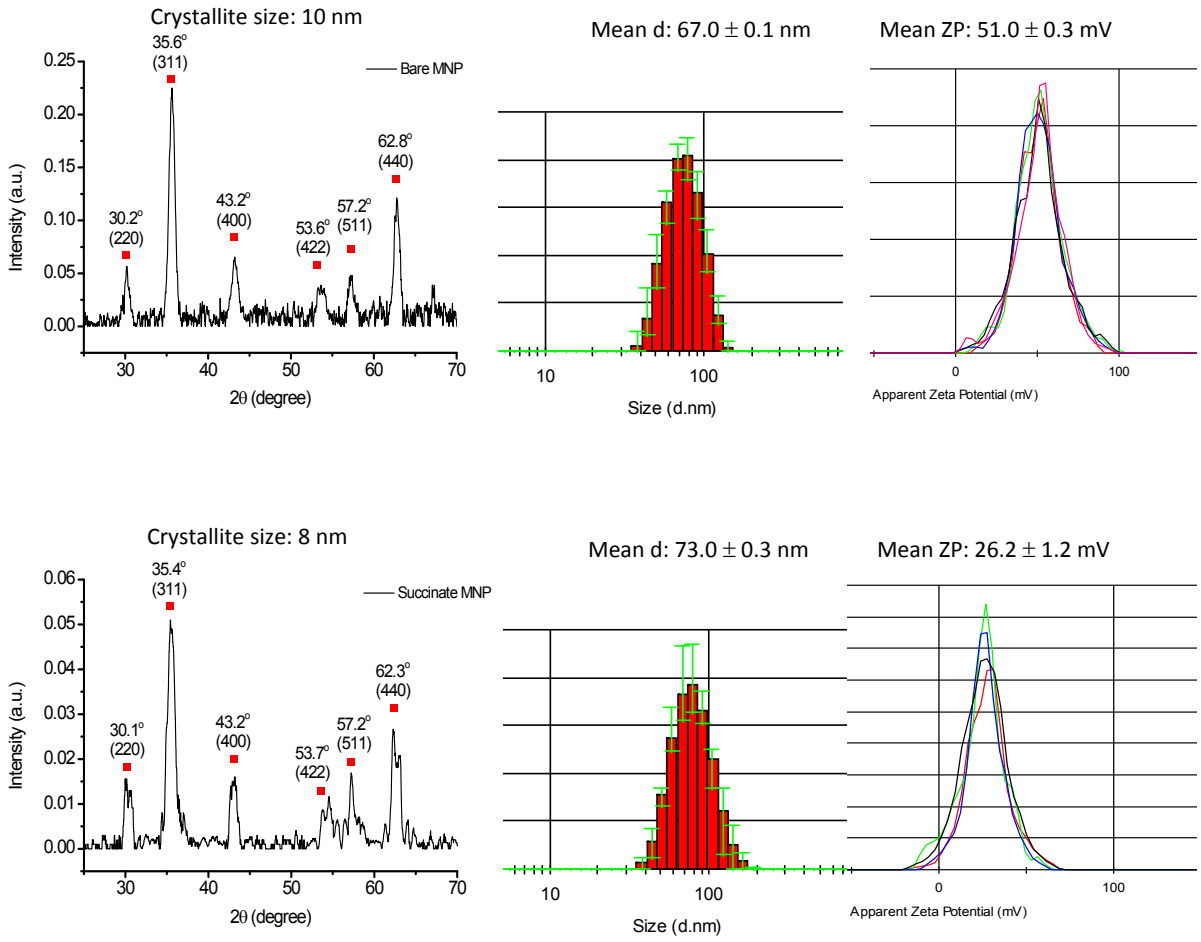

Figure S3. Characterization by pXRD (in solid) and DLS (in water, room temperature) for bare MNP (top) and succinate MNP (bottom). Conditions for DLS: 0.1 mg/mL, pH 6.0, at least 3 individual measurements.

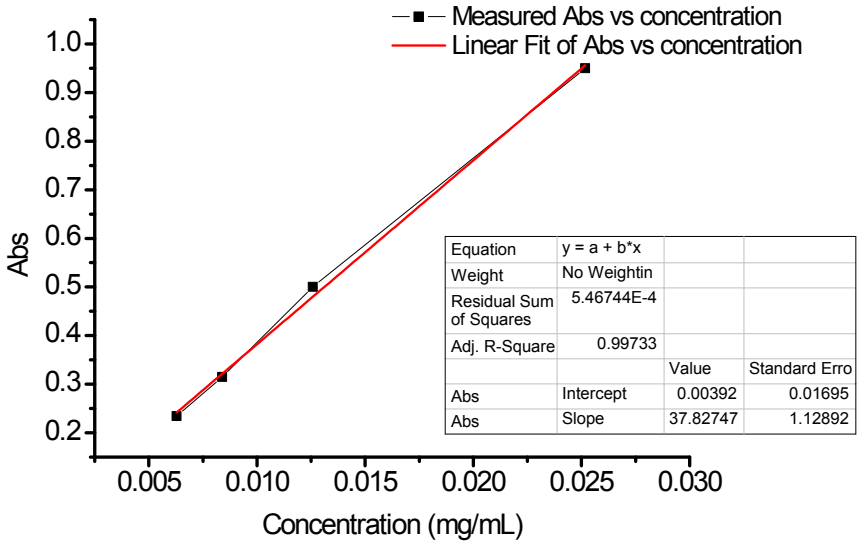

Figure S4. Calibration curve of absorbance versus concentration of catalyst (Ad-L-$PdCl_2$) in H_2O-CH_3OH (2/1, v/v) (Cuvette: quartz; slit width: 1.0 nm; wavelength range: 200 nm – 800 nm; absorption peak: 209 nm; room temperature).

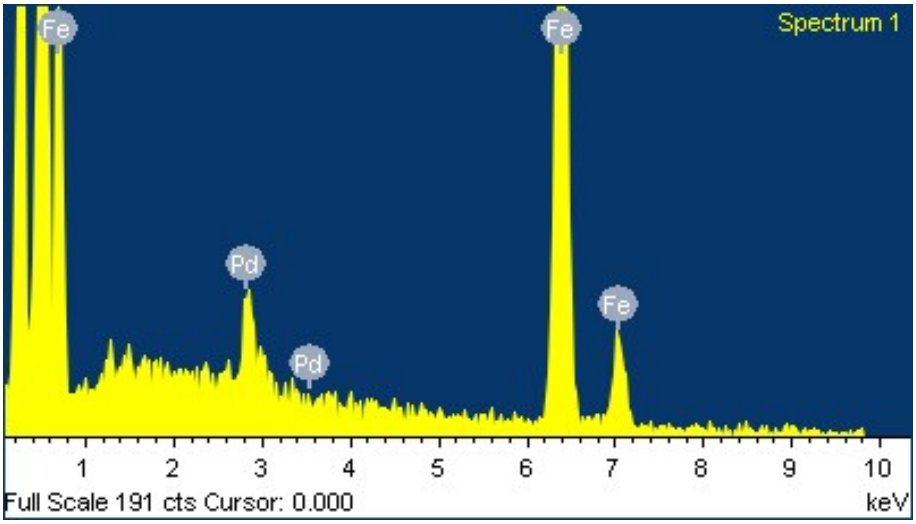

Figure S5. SEM-EDS analysis of separated β-CD-MNP from the mixture of catalyst and β-CD-MNP in H_2O-CH_3OH (2/1, v/v). Amount of catalyst (before catch): 0.35 mg in H_2O-CH_3OH (2/1, v/v), 1.5 mL; β-CD/Ad molar ratio: 0.70; room temperature.

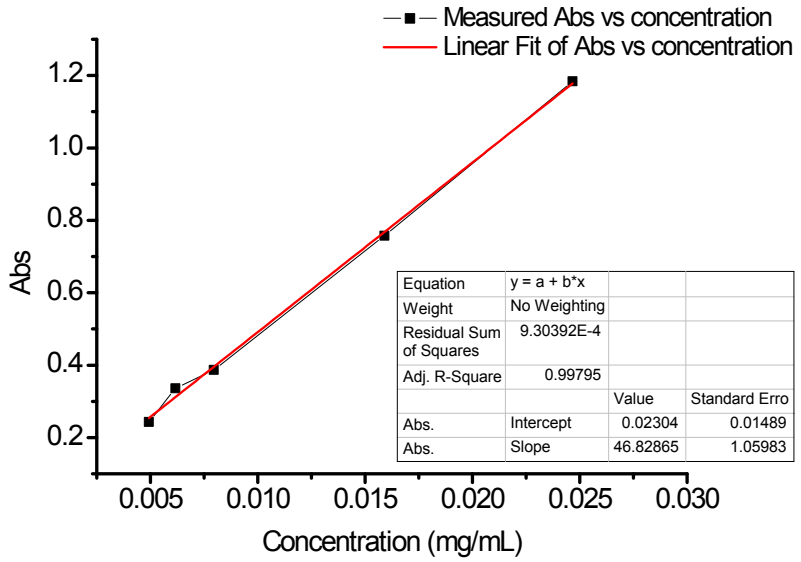

Figure S6. Calibration curve of absorbance versus concentration of catalyst (Ad-L-$PdCl_2$) in methanol (Cuvette: quartz; slit width: 1.0 nm; wavelength range: 200 nm – 800 nm; absorption peak: 209 nm; room temperature).

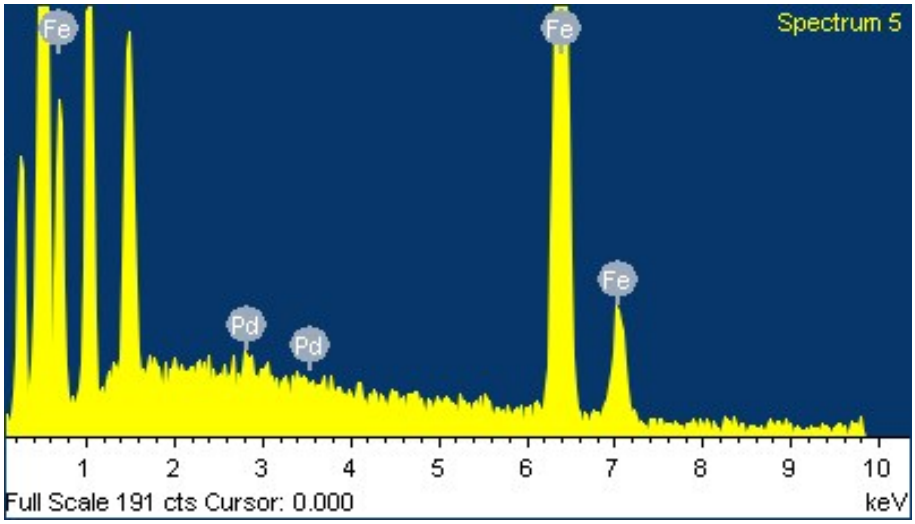

Figure S7. SEM-EDS analysis of separated β-CD-MNP from the mixture of a Suzuki-Miyaura coupling reaction filtrate and β-CD-MNP in H_2O-CH_3OH (2/1, v/v). Initial catalyst loading: 0.35 mg in H_2O-CH_3OH (2/1, v/v), 1.5 mL; β-CD/Ad molar ratio: 2.0; room temperature.