

Solvothermal Synthesis of FeCo Nanoparticles for Magneto-Controllable Biocatalysis

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1. Energy dispersive spectroscopy (EDS) measurements for the as-obtained FeCo alloys with different components.

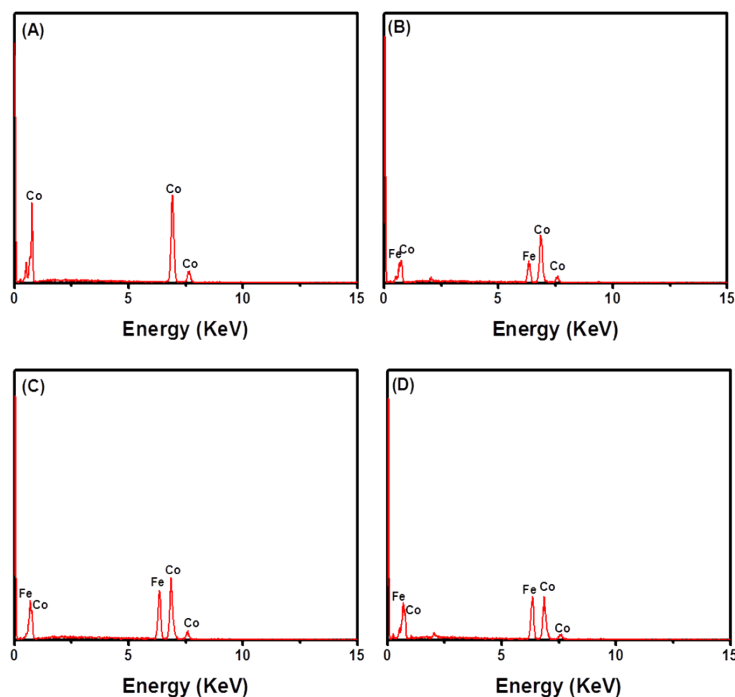


Figure S1. EDS results of FeCo alloys with different components: (A) Co, (B) Fe₂₄Co₇₆, (C) Fe₄₁Co₅₉, (D) Fe₅₀Co₅₀.

2. XRD characterization of the obtained magnetic alloys.

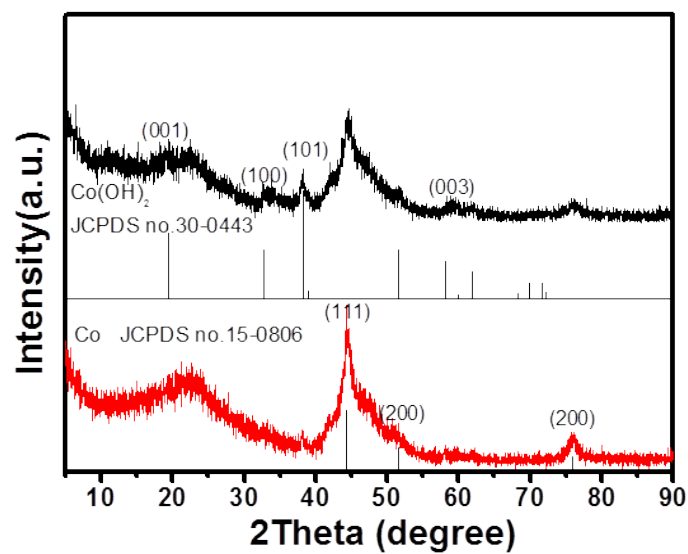


Figure S2. XRD patterns of the products when only Co precursor was added with 0.5 g NaOH (black line, the mixture of Co and Co(OH)_2) and 2 g NaOH (red line, Co).

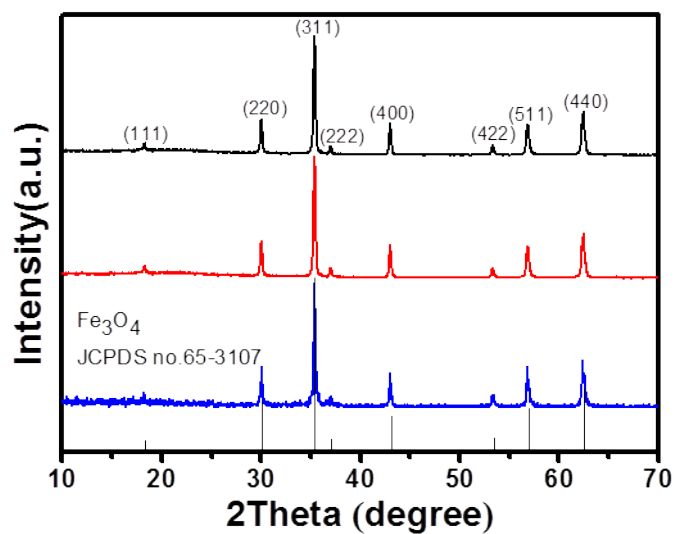


Figure S3. XRD patterns of the products when only Fe precursor was added with 0.5 g NaOH (black line, Fe_3O_4), 2 g NaOH (red line, Fe_3O_4) and 6 g NaOH (blue line, Fe_3O_4).

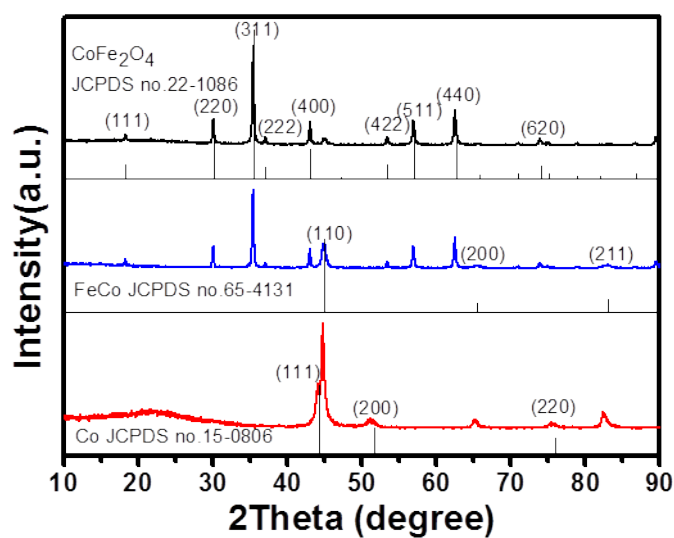


Figure S4. XRD patterns of the products with feeding ratio of $\text{Fe}^{3+}:\text{Co}^{2+}$ at 8:2 under adding 0.5 g NaOH (black line, the mixture of CoFe_2O_4 and FeCo), 1 g NaOH (blue line, the mixture of CoFe_2O_4 and FeCo) and 2 g NaOH (red line, the mixture of Co and FeCo).

3. Surface characterization of $\text{Fe}_{41}\text{Co}_{59}$ after lipase immobilization.

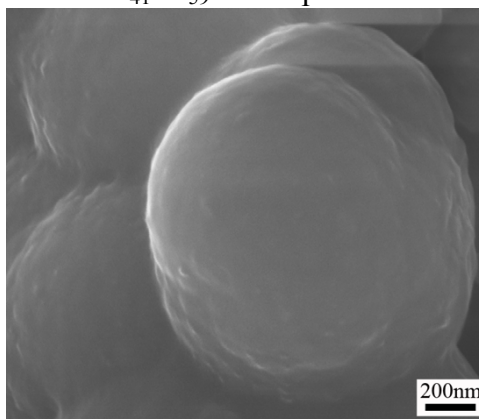


Figure S5. SEM image of $\text{Fe}_{41}\text{Co}_{59}$ carrier with loaded lipase.

4. Visual magnetic properties of FeCo carrier.

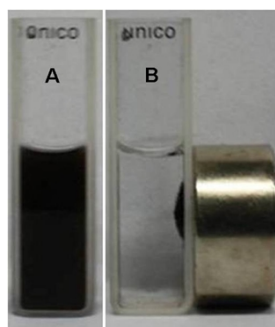


Figure S6. Visual magnetic properties of FeCo carrier: (A) dispersed in solution; (B) easily drawn to the wall by outer magnet.

5. Magnetic data of the as-prepared FeCo alloy nanoparticles.

	Co	Fe ₂₄ Co ₇₆	Fe ₄₁ Co ₅₉	Fe ₅₀ Co ₅₀
Ms(emu/g)	91.536	164.86	186.83	180.48
Hc(Oe)	116.68	231.08	70.517	76.793

Table S1. Saturation magnetization (Ms) and coercivity (Hc) of FeCo alloy nanoparticles with different compositions.