

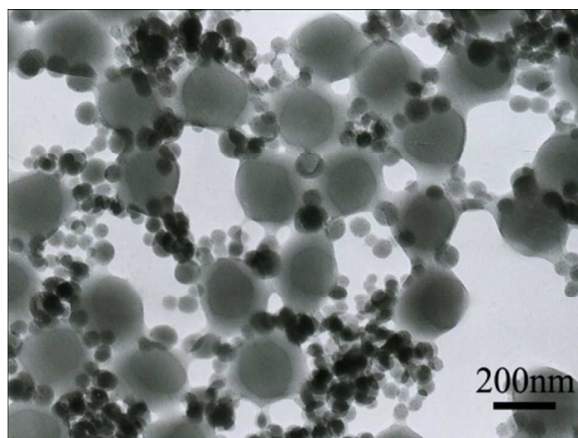
## Supporting Information for

### **Composite microspheres for separation of plasmid DNA decorated with MNPs through in situ growth or interfacial immobilization followed by silica coating**

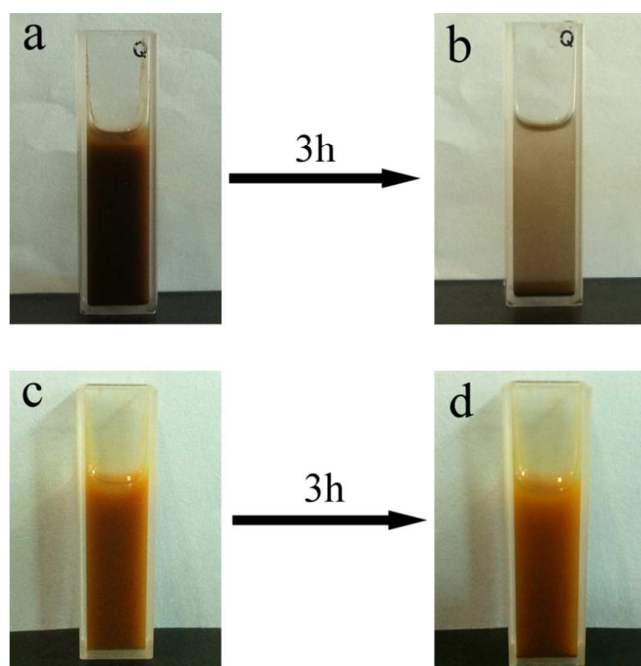
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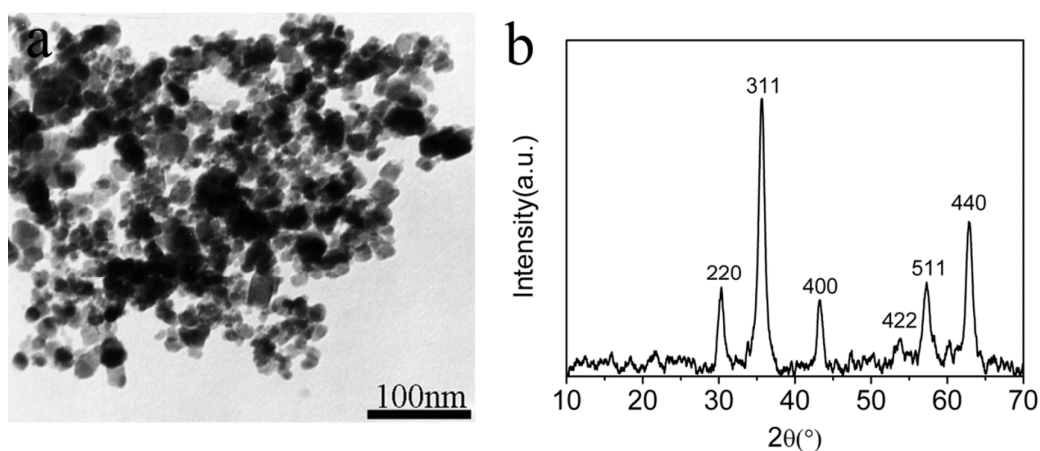
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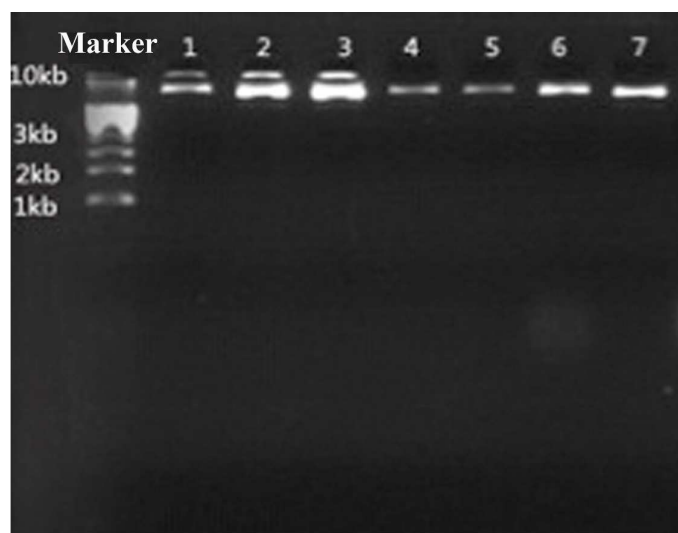
**Figure S1.** TEM image of polymer/magnetite composite microspheres from unmodified epoxy-capped polymer seeds.



**Figure S2.** Photographs of stability test in PBS (0.1M, pH 7.4) and standing for 3h of non-stabilized microspheres (a, b) and sodium citrate stabilized microspheres (c, d)



**Figure S3.** (a) TEM image and (b) Powder XRD pattern of citrate acid stabilized magnetic nanoparticles through coprecipitation method.



**Figure S4.** Agarose gel electrophoresis of the extracted plasmid DNA.

**Table S1.** Quantitive size measurement of MNPs as functions of weight ratio ( $\text{FeCl}_3$ : PSG-COOH) and sodium citrate amount in Figures 3.

Figure	Weight ratio of $\text{FeCl}_3$ : PSG-COOH	Sodium citrate feeding amount/mg	Diameter of MNPs in average/nm
3a	4:1	0	180
3b	2:1	0	110
3c	1:1	0	95
3d	1:1	5	60
3e	1:1	10	40
3f	1:1	25	15

**Table S2.** Quantitive size measurement of MNPs in Figures 4 and Figure S2

Figure	Diameter of MNPs in average/nm
4a	50
S2	32

**Table S3.** Concentration of the extracted plasmid DNA in elution solution

Sample	260	280	260/280	Concentration (ng/ml) <sup>a</sup>
1	0.178	0.098	1.823	178.21
2	1.701	0.823	2.067	1701.18
3	0.976	0.478	2.039	975.53
4	0.065	0.036	1.802	65.29
5	0.146	0.077	1.891	145.82
6	0.247	0.123	2.016	247.36
7	0.354	0.192	1.841	354.36

<sup>a</sup> The DNA concentrations are automatically obtained from the Microplate reader after 2  $\mu$ l addition of the specific sample.