Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

Supporting information for

Eccentric Magnetic Microcapsules for Orientation-specific and Dual Stimuli-responsive Drug Release

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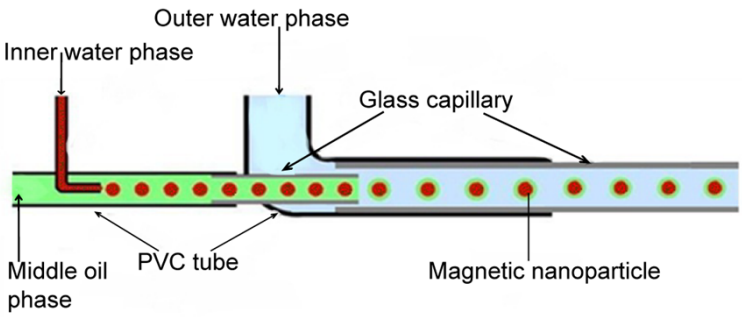

Figure S1. Schematic diagram of the microfluidic device for fabricating the microcapsules.

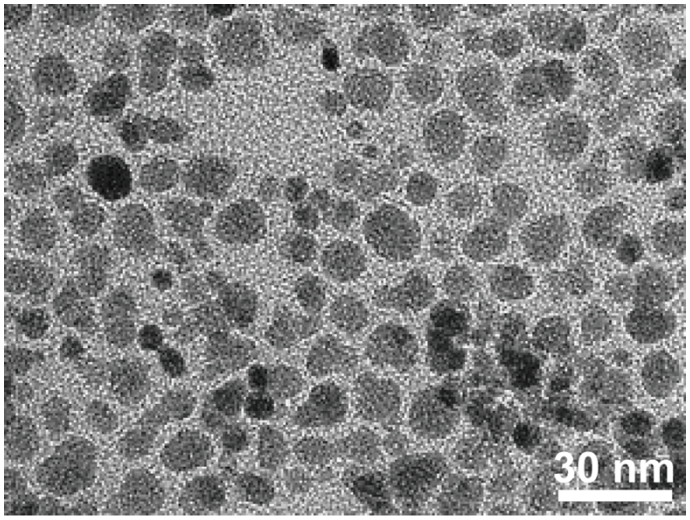

Figure S2. Transmission electron microscope (TEM) images of Fe_3O_4 magnetic nanoparticles. The magnetic nanoparticles (~10 nm) we used were modified by sephadex which make them well-dispersed in water and could be easily encapsulated into the microcapsules without leaking.

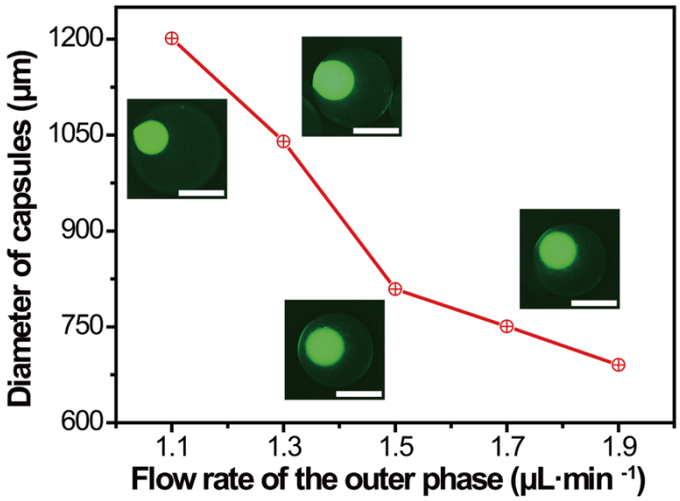

Figure S3. The size of the external structures of the microcapsule as a function of the flow rates for the outer water phase. The scale bars in the insets are 500 μm.

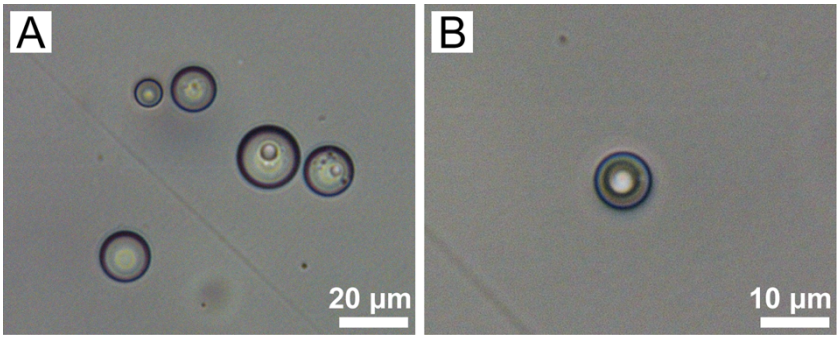

Figure S4. Optical images of eccentric microcapsules fabricating in double emulsion. We were able to obtain eccentric microcapsules smaller than 20 μm.

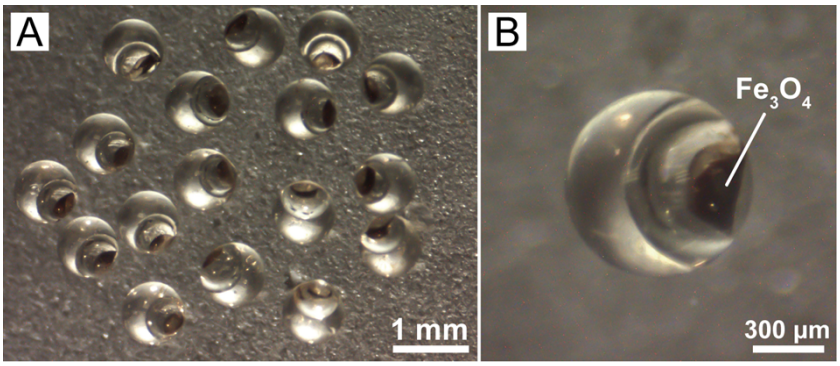

Figure S5. Optical images of hollow eccentric magnetic microcapsules. We focused the magnetic substances on the thin wall of eccentric microcapsules by evaporating the inner water of eccentric microcapsules under magnetic field.

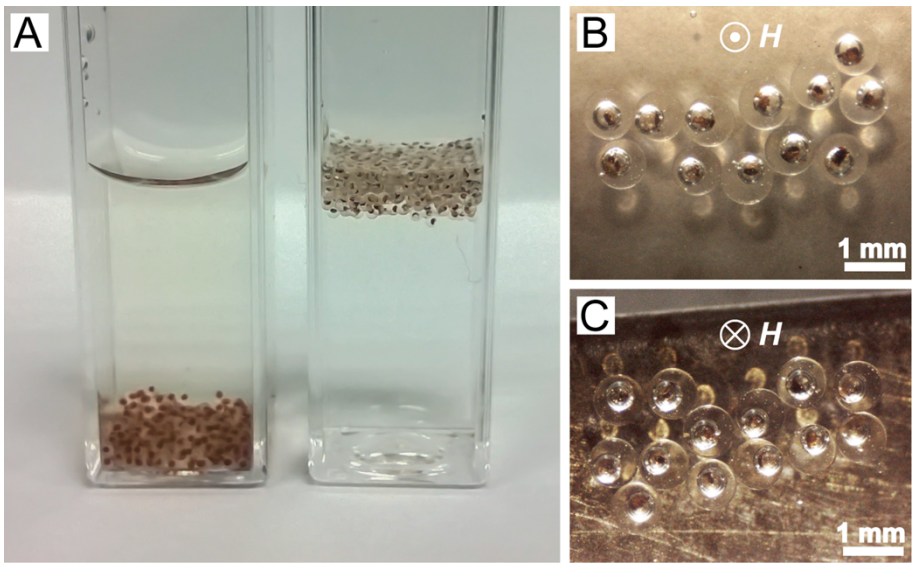

Figure S6. Floatability of hollow eccentric magnetic microcapsules. (A) The comparison of microcapsules before and after baking. The unbaked microcapsules sank at the bottom of the bottle, whereas baked ones could easily float on the surface of water. (B) The top view of the microcapsules float on the surface of water and turned to a magnet on the top of a Petri dish. (C) The top view of the microcapsules sank at the bottom of the

bottle and turn to a magnet at the bottom of a Petri dish.

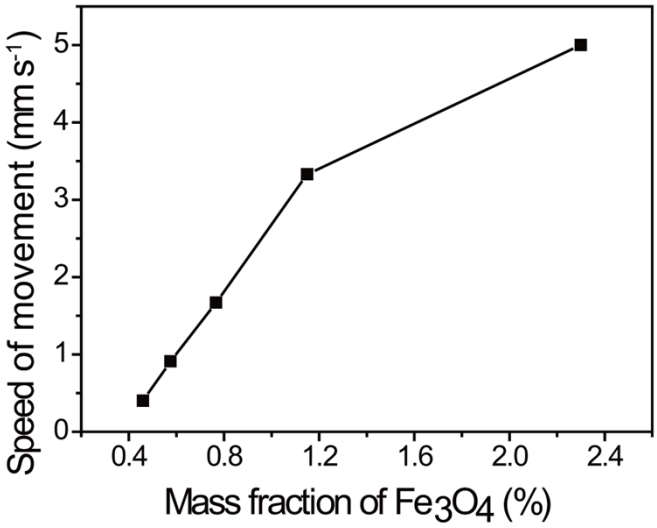

Figure S7. The movement speeds of microcapsules with different mass fraction of magnetic nanoparticles under the attraction of magnetic field.

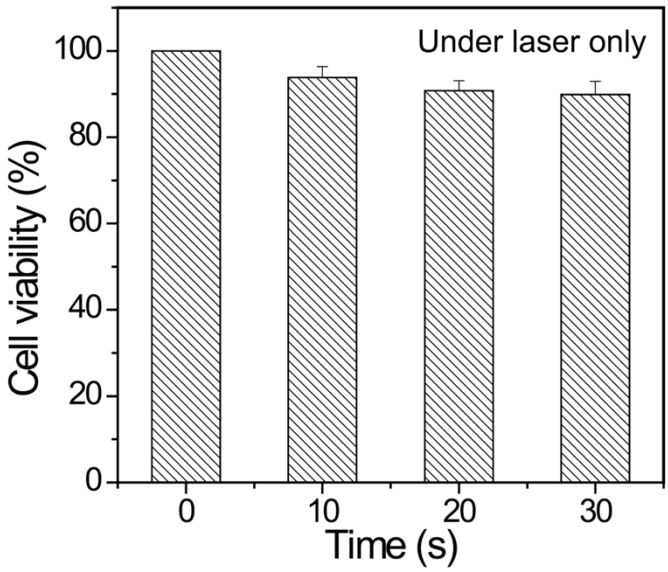

Figure S8. Viability of HeLa cells treated with laser for 0 s, 10 s, 20 s, and 30 s.