SUPPLEMENTARY MATERIAL

Biodegradable polyelectrolyte/magnetite capsules for MR imaging and magnetic targeting of tumors

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Figure SM1. (a) TEM image of colloidal dispersion of magnetite nanoparticles. (b) Distribution of magnetite nanoparticle diameter measured by DLS.
**Figure SM2.** Photographs of the capsule suspensions in cuvette before and after the application of the permanent magnet with a concentrator (0.5 T).

**Figure SM3.** $^1$H Nuclear Magnetic Relaxation Dispersion (NMRD) profiles of magnetic polyelectrolyte capsules (sample S) acquired at 25 (black squares) and 37 °C (grey circles).
Figure SM4. Dependence of the longitudinal ($r_1$) and transverse ($r_2$) relaxivities on the amount of iron in the sample at 0.5 T and 25 °C.

Table SM1. Characteristics of magnetic polyelectrolyte capsules at 7 T and 25 °C.

| Sample | Structure | $r_1$, (mM×s)$^{-1}$ | $r_2$, (mM×s)$^{-1}$ | $r_2/r_1$ |
|--------|-----------|----------------------|----------------------|------------|
| $C_1S$ | (MNPs)/(PA/DS/PA/MNPs/PA/DS) | 0.6 | 90.7 | 147.5 |
| $C_6S$ | (MNPs)$_6$/(PA/DS/PA/MNPs/PA/DS) | 0.2 | 36.5 | 197.0 |

Figure SM5. $T_{1w}$ (a) and $T_{2w}$ (b) magnetic resonance images acquired at 7 T of glass capillaries containing TS/A cells incubated for 1 and 20 hours in the absence (control cells, CTRL) and in the...
presence of MNP-doped capsules C₁S and C₆S; (c) amount of iron (in mol) per 1 mg of cellular proteins calculated in TS/A cells following the incubation with sample C₁S or C₆S. 1 mg of proteins is equal to 2.5x10⁶ TS/A cells [di Gregorio E, Ferrauto G, Gianolio E, Aime S. Gd loading by hypotonic swelling: an efficient and safe route for cellular labeling. Contrast Media Mol. Imaging, 2013; 8: 475-486].