Controlled aggregation and cell uptake of thermoresponsive polyoxazoline-grafted superparamagnetic iron oxide nanoparticles

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ELECTRONIC SUPPORTING INFORMATION
Fig. S1 $^1$H-NMR spectrum of PIPOX/PETOX(87/13) in CDCl$_3$.

Fig. S2 Transmission electron micrographs of (A) Fe$_3$O$_4$/PIPOX(100) and (B) Fe$_3$O$_4$/PIPOX/PETOX(87/13), scale bar: 100 nm.
Fig. S3 FTIR-spectrum of Fe₃O₄/PIPOX/PETOX(87/13), bands at 3447 cm⁻¹ (H₂O) and 2336, 2359 cm⁻¹ (CO₂).

Fig. S4 TGA of Fe₃O₄/PIPOX(100) (blue), Fe₃O₄/PIPOX/PETOX(87/13) (red) and Fe₃O₄/PETOX(100) (black) in synthetic air, 10 K min⁻¹ (25-600 °C).
Fig. S5 DLS heating curves for free polyoxazolines in MilliQ, count rate vs. temperature, and hydrodynamic diameter vs. temperature, (A, D) for PIPOX(100) (1 mg mL⁻¹), (B, E) for PIPOX/PETOX(87/13) (1 mg mL⁻¹) and (C) for PETOX(100) (7 mg mL⁻¹).

Fig. S6 Temperature cycled DLS measurements for medium (RPMI-1540) with 10 vol% FCS, red diamonds: heating curve, blue squares: cooling curve.
Fig. S7 Temperature cycled DLS measurements for pozylated SPIONs (1 mg mL$^{-1}$) in medium with 10 vol-% FCS, count rate vs. temperature and hydrodynamic diameter vs. temperature for Fe$_3$O$_4$/PIPOX(100) (A, D), for Fe$_3$O$_4$/PIPOX/PETOX(87/13) (B, E) and Fe$_3$O$_4$/PETOX(100) (C, F).

Fig. S8 Viability of HeLa cells compared to control after incubation at 37 °C for 24 h with pozylated SPION (addition of 10 µL SPION-dispersion (1 mg mL$^{-1}$ in MilliQ) to cells suspended in medium (RPMI-1640) (100 µL)).
Fig. S9 DSC heating curve (1 °C min⁻¹) for Fe₃O₄/PETOX(100), 1 mg mL⁻¹ in MilliQ water.

Fig. S10 Temperature-cycled DLS measurements for SPION sample Fe₃O₄/PNIPAM (1 mg mL⁻¹) in medium (RPMI-1640), A) count rate vs. temperature, B) hydrodynamic diameter vs. temperature.
**Fig. S11** DLS correlation functions A-B) for SPION sample Fe$_3$O$_4$/PIPOX(100), (1 mg mL$^{-1}$) in MilliQ water, A) at 25°C, B) at 45°C, C-D) for SPION sample Fe$_3$O$_4$/PIPOX/PETOX(87/13), (1 mg mL$^{-1}$) in medium (RPMI-1640), C) at 20°C, D) at 38°C.

**Fig. S12** DLS heating curves (zoomed region from 20 to 31 °C for Fig. 3 from main text) for SPION dispersed in medium (RPMI-1640) at 1 mg mL$^{-1}$, hydrodynamic diameter vs. temperature for A) Fe$_3$O$_4$/PIPOX(100), B) Fe$_3$O$_4$/PIPOX/PETOX(87/13) and C) Fe$_3$O$_4$/PETOX(100). Heating curve: red diamonds, cooling curve: blue squares.