Supporting Information for:

Combining Magnetic Hyperthermia and dual $T_1/T_2$ MR Imaging Using Highly Versatile Iron Oxide Nanoparticles

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Figure S1: Magnetic colloidal fluid (ferrofluid) composed of oleate-coated USPIONs suspended in chloroform.

Figure S2: TGA and DGT of pure oleic acid.
**Figure S3:** Intensity-weighted hydrodynamic size distributions of the ferrofluid over time. Each measurement was repeated three times.

**Figure S4:** SAED image of oleate-coated USPIONs taken 8 months after the preparation of the ferrofluid. The diffraction rings match the main diffraction planes of magnetite (JCPDS file no. 19-0629).
Figure S5: Experimental setup for hyperthermia calorimetric experiments (left). Both the sample and the magnetic induction coil were placed inside a thermostatic chamber with an automated temperature regulator (right).
Figure S6: Heating curve of sample d (4.5 mg NPs/ml) measured in the commercial hyperthermia equipment at H=25.2 mT and f=835 kHz.

**Supplementary Calculations: Ligand density**

The average volume of a single magnetite nanoparticle ($V_{NP} = 572.15 \text{ nm}^3$) was obtained from equation (S1), where $R$ is the average nanoparticle radius obtained from TEM image analysis ($R = 5.15 \text{ nm}$):

$$V_{NP} = \frac{4}{3} \pi R^3$$  \hspace{1cm} (S1)

The average mass of a single nanoparticle ($m_{NP} = 2.96 \cdot 10^{-18} \text{ g}$) was calculated from equation (S2), where $d$ is the density of magnetite ($d = 5.18 \text{ g/cm}^3$):

$$m_{NP} = d \cdot V_{NP}$$  \hspace{1cm} (S2)

If we consider 1 g of oleate-coated USPIONs, the amount of oleate ($m_o$) and magnetite ($m_{USPIONs}$) can be estimated using the results from the TGA analysis: 20.5 % (w/w). The ligand density ($l_d = 1635$ oleate molecules/nanoparticle), can be obtained from equation (S3) using the molecular weight of oleate ($M_w = 281.46 \text{ g/mol}$) and the Avogadro’s number ($N_A = 6.022 \cdot 10^{23}$):

$$l_d = \frac{(m_o / M_w) \cdot N_A}{m_{USPIONs} / m_{NP}}$$  \hspace{1cm} (S3)