Supporting information for

Manganese-impregnated mesoporous silica nanoparticles for signal enhancement in MRI cell labelling studies

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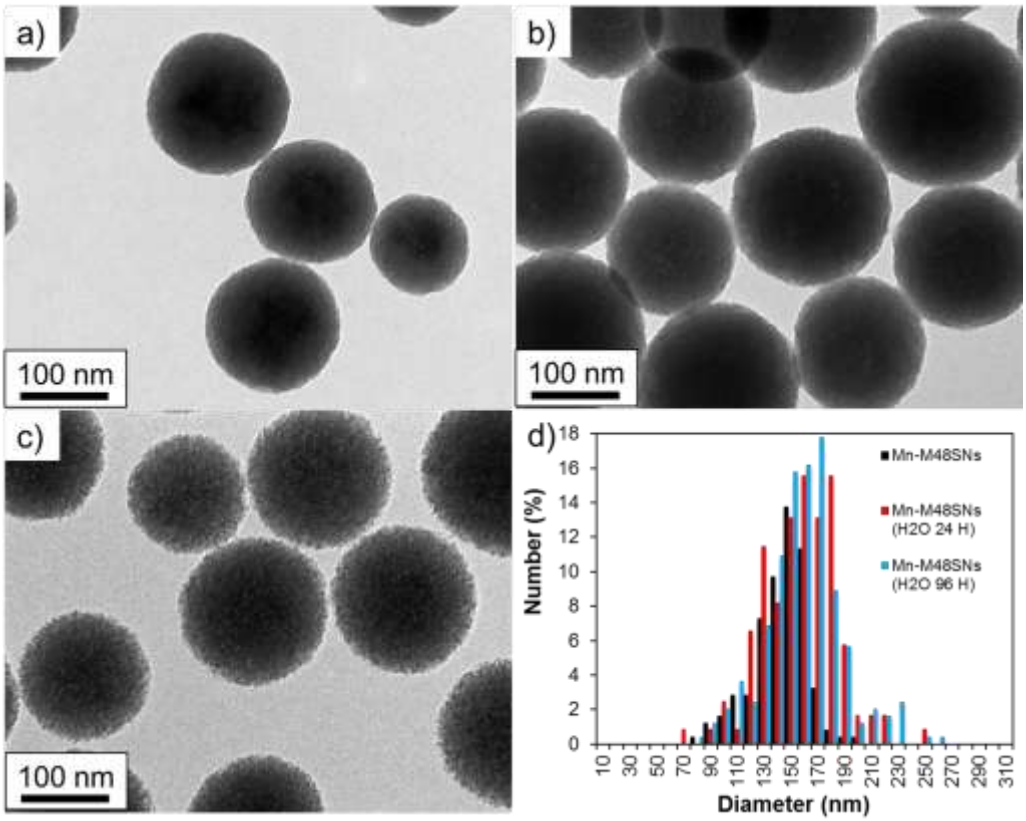

Figure S1. TEM images of Mn-M48SNs after (a) thermal reduction treatment and after suspension in H_2O for (b) 24 h or (c) 96 h and (d) corresponding particle size distributions.

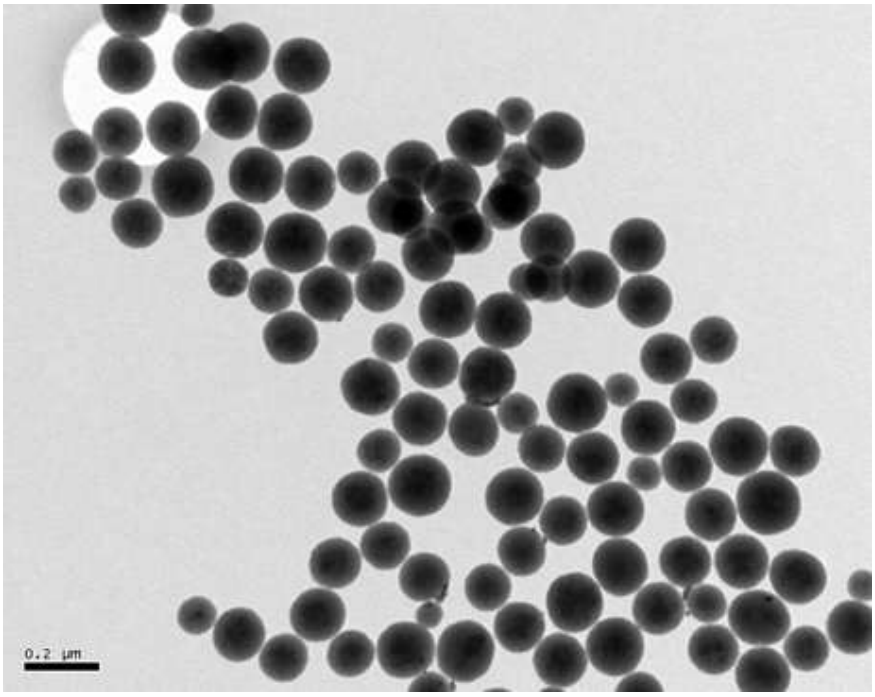

Figure S2. TEM image of Mn-M48SNs after thermal reduction treatment (corresponding to the product in Figure S1.a).

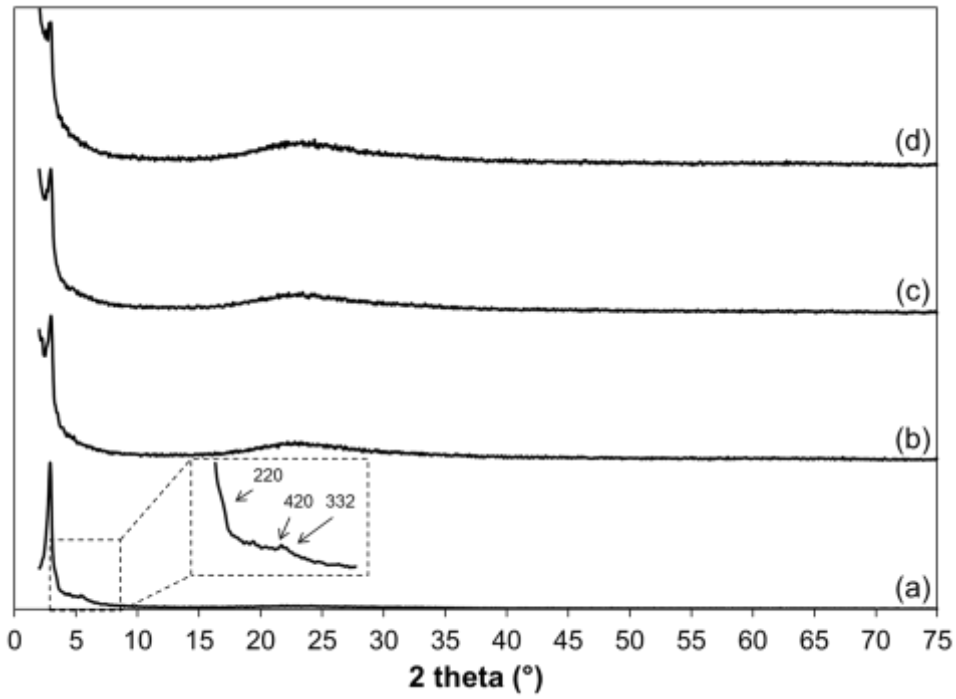

Figure S3. XRD patterns of Mn-M48SNs after (a) thermal reduction treatment and after suspension in H_2O for (b) 3 h, (c) 24 h, or (d) 96 h.

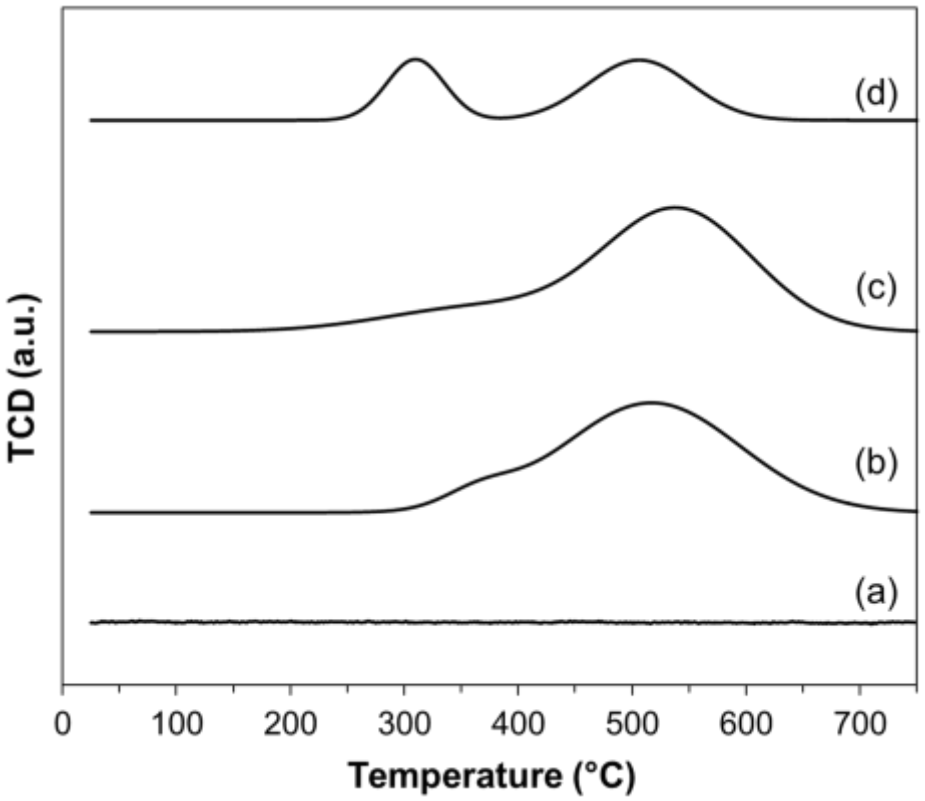

Figure S4. H_2-TPR profiles of Mn-M48SNs after (a) thermal reduction treatment and after suspension in H_2O for (b) 3 h, (c) 24 h, or (d) 96 h.

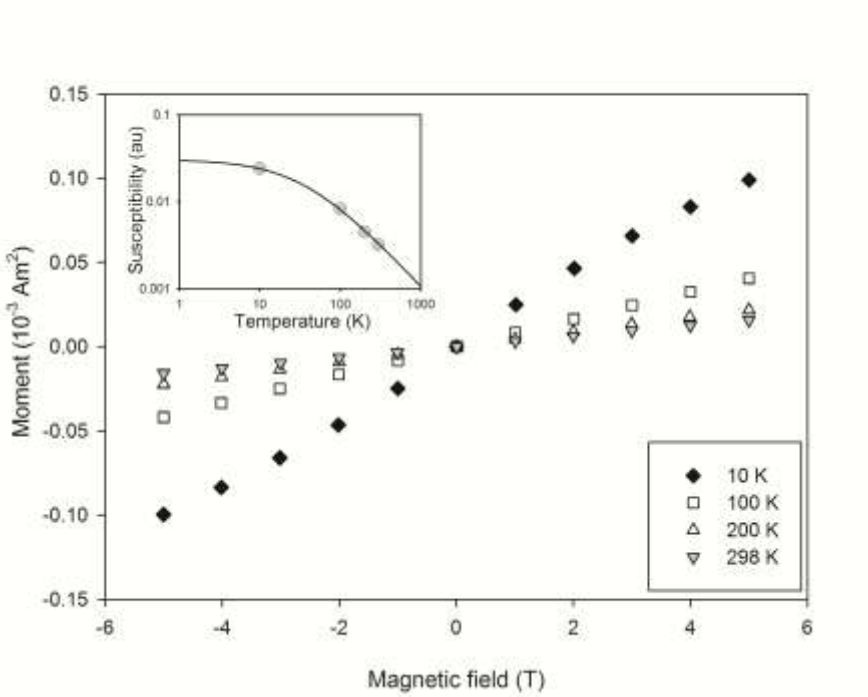

Figure S5. Magnetometric profiles of Mn-M48SNs at different temperatures.

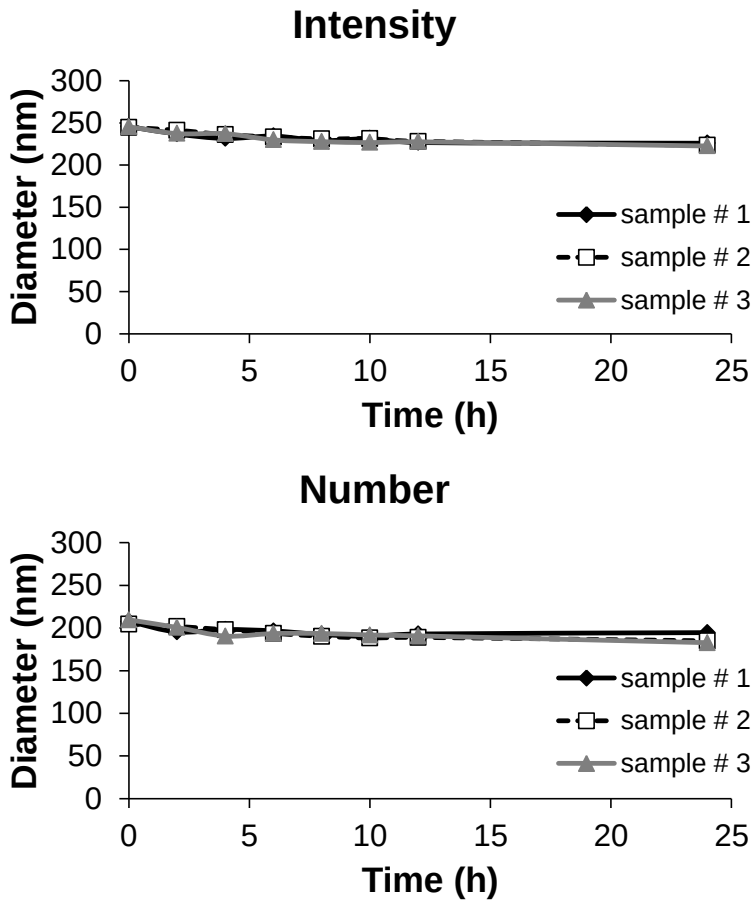

Figure S6. Colloidal stability assay for Mn-M48SN particles suspended in DMEM.

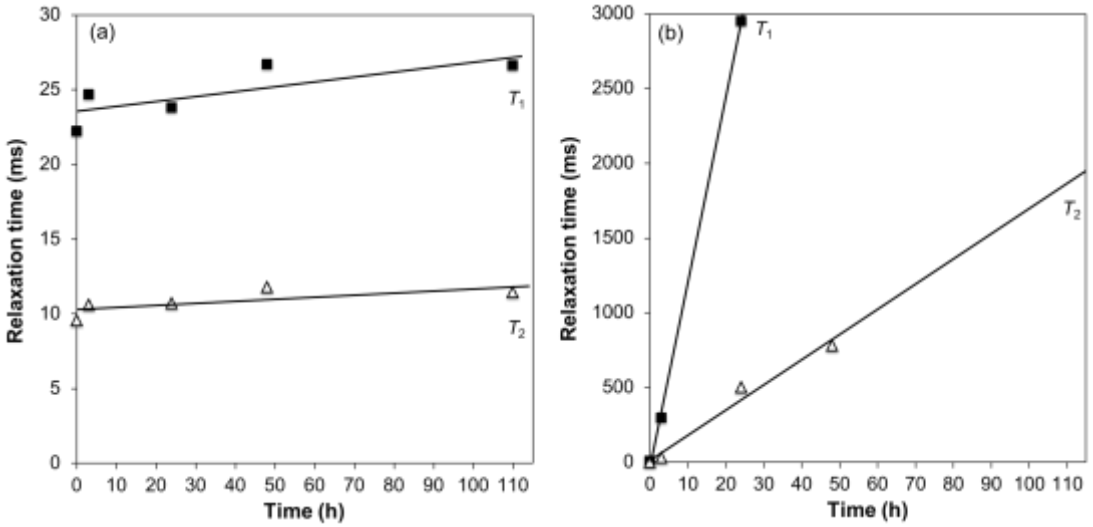

Figure S7. T_1 and T_2 relaxation times (60 MHz, 37 °C) of Mn-M48SNs suspended for prolonged times in (a) H_2O and (b) acetate buffer (20 mM, pH 5). Before each measurement, suspensions were centrifuged at 5000 *g* and materials were suspended in fresh media.

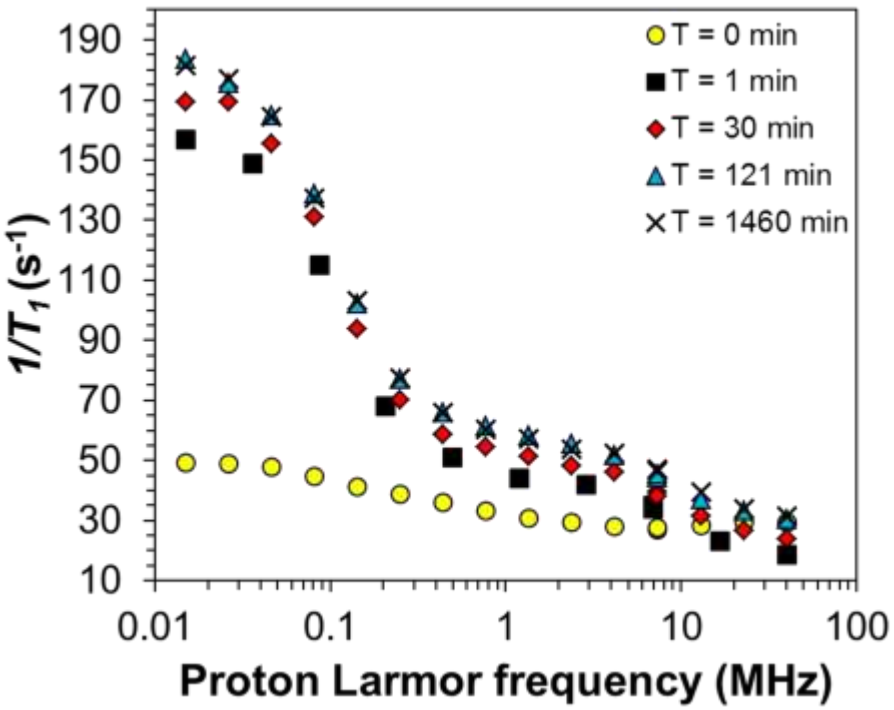

Figure S8. NMRD profiles of Mn-M48SNs suspended in acetate buffer (20 mM, pH 5) performed at 37°C.

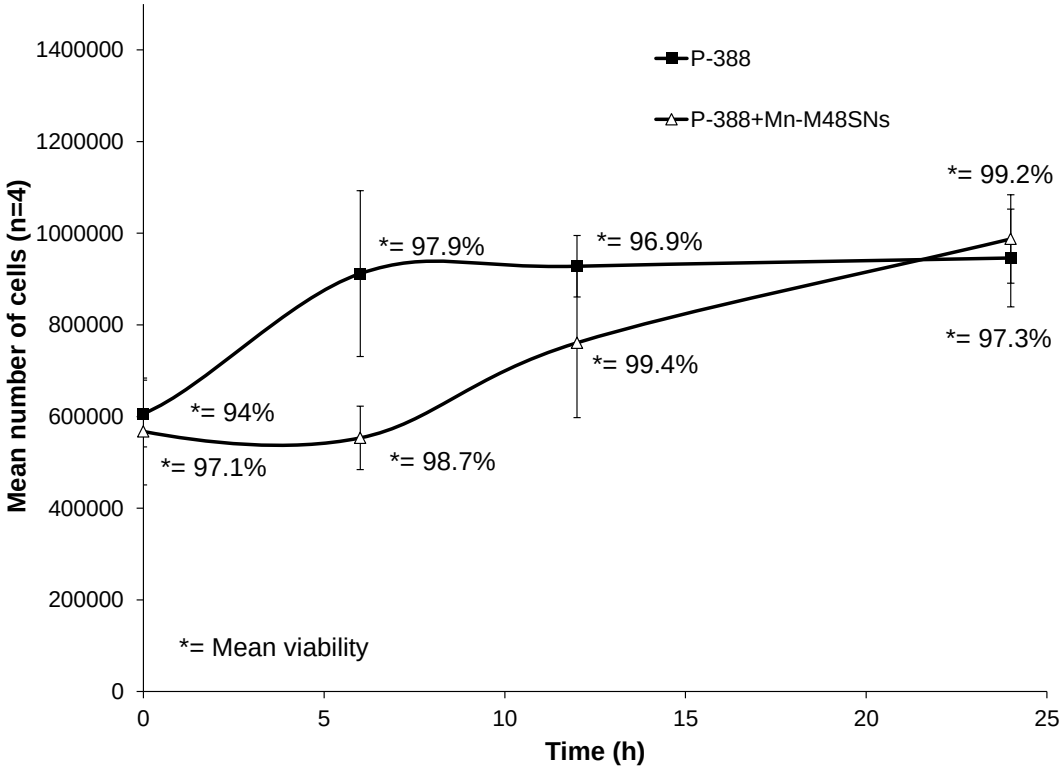

Figure S9. P388 cell proliferation assay, after 4 hours of incubation with 7 % (v/v) Mn-M48SNs.

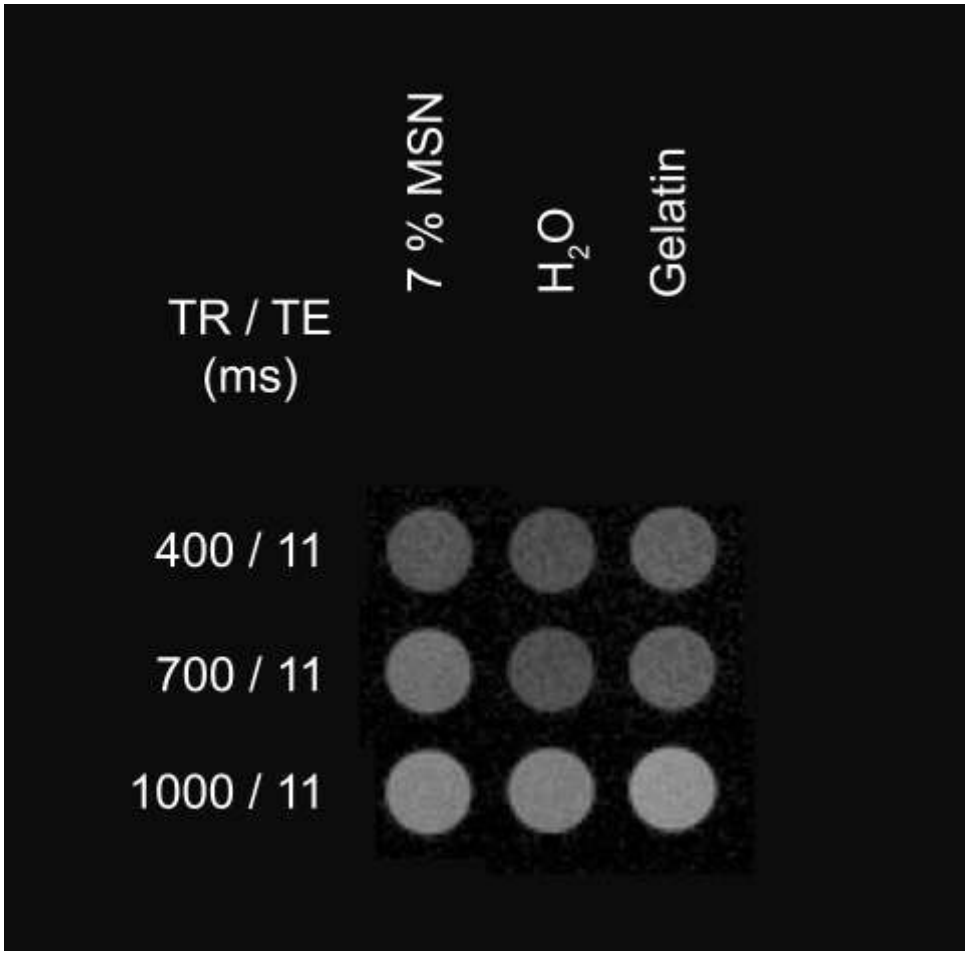

Figure S10. T_1-w. MR images of P388 cells incubated 4 h with a 7 % (v/v) stock solution of M48SNs obtained with different echo delay times and repetition times. No difference of signal was found between cells incubated with 7 % (v/v) MSNs, water and gelatin.