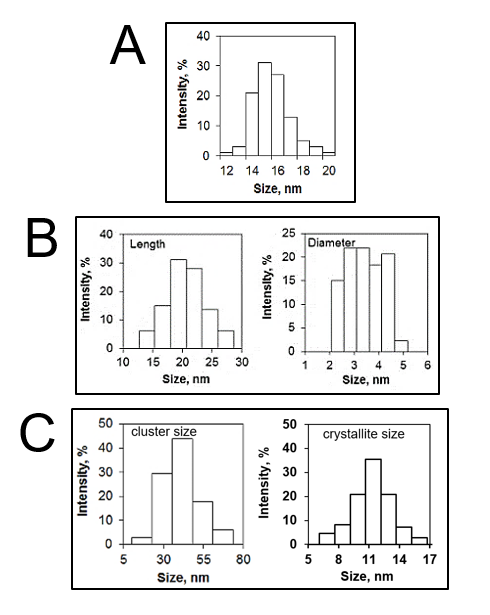
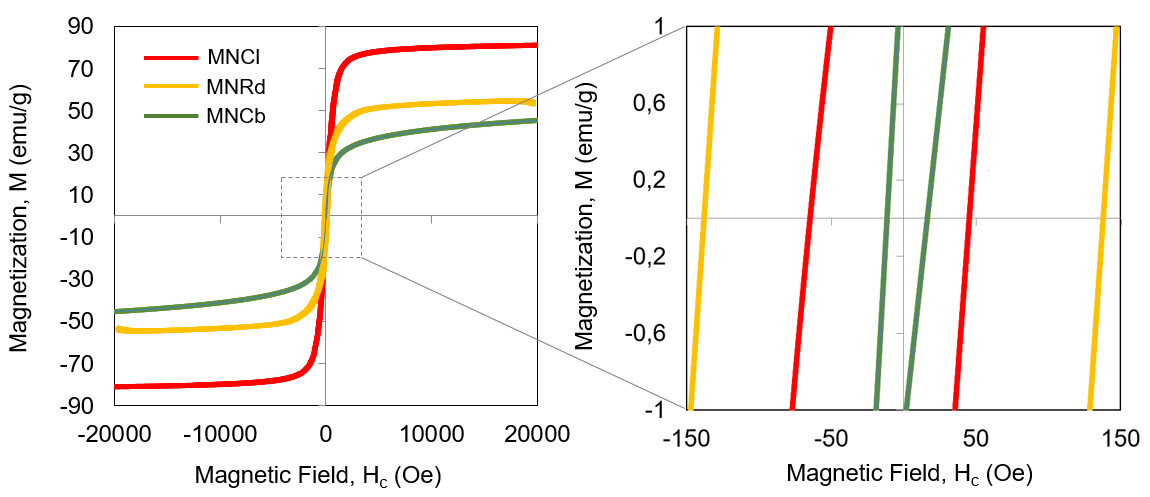
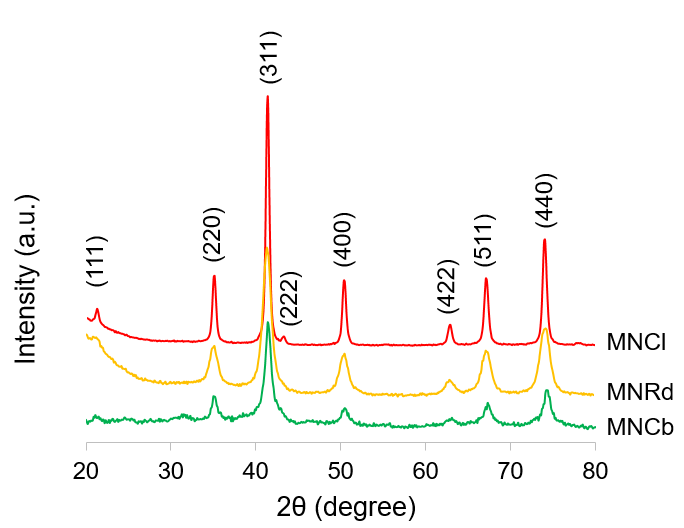
****

**Supplementary figure S1.** Histogramsof MNCb **(A)**, MNRd **(B)** and MNCl **(C)** size distribution (associated with Fig 1A)



**Supplementary figure S2.** M-H curves of MNCb, MNRd and MNCl at room temperature. M-H hysteresis loops (from -20 to 20 kOe, 300 K) were obtained on «Quantum Design» Physical Property Measurement System (PPMS) equipped with vibration magnetometric device (VSM) with 2 mm amplitude of oscillations, 40 Hz frequency.



**Supplementary figure S3.** X-ray diffraction patterns of MNCb, MNRd and MNCl at room temperature. XRD patterns were obtained using an X-ray power diffractometer Rigaku Ultima IV with Co Kα radiation at room temperature. The data were collected from 2θ = 20 to 80° at a scan rate 0,1° per step and 3 s per point.

K:\текущая работа\MRI paper\final\feedback050718\Supplementary_figure_S1-good.tif

**Supplementary figure S4.** ROS detection in IONPs-treated cells.SC-1 cells intravital staining with H2DCFDA after 6 and 24 h incubation in culture medium with PBS (control) or 200 μg/mL IONPs, phase contrast and fluorescent microscopy. White arrows indicate single cells with increased level of ROS production.

K:\текущая работа\MRI paper\final\figS2.tif

**Supplementary figure S5.** Detection of late apoptotic/necrotic cells after IONPs treatment. SC-1 cells intravital staining with Nuclear Green after 6 and 24 h incubation in culture medium with PBS (control) or 200 μg/mL IONPs, phase contrast and fluorescent microscopy. White arrows indicate rare dead cells.

K:\текущая работа\MRI paper\final\figS3.tif

**Supplementary figure S6.** IONPs biodistribution profiles in multiple tumor models. Iron concentrations measured by AES in liver, spleen, kidney, lung and heart of mice with 4T1 (**A**), CT26 (**B**) and B16 (**C**) tumors. Results are shown as means ± SEM. \*p<0.05 in IONP-treated vs control group (Dunnett's Multiple Comparison Test).

**K:\текущая работа\MRI paper\final\figS4.tif**

**Supplementary figure S7.** Patterns of MR contrast enhancing. T2-weighted imaging mode (left panels) was followed by T2\*-weighted imaging (right panels).Representative images of diffuse (**A,** arrow) and focal (**B**,arrowhead) tumor contrast enhancement after intravenous injection of IONPs.

**Supplementary Table S1.** XRD characteristics of MNCb, MNRd and MNCl and standard magnetite nanoparticles.

|  |  |  |  |
| --- | --- | --- | --- |
| Sample | X-ray diffraction analysis | | |
| Volume fraction, % | Crystallite size, nm | Lattice constants, Å |
| Fe3O4 | Fe3O4 | Fe3O4 |
| MNCb | 100 | 14.1(3) | 8.390 |
| MNRd | 100 | 15.2(7) | 8.388 |
| MNCl | 100 | 18.4(3) | 8.392 |
| Standard magnetite | - | - | 8.396 |