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Particles tested using magneTherm™ technology

Particle	Concentration	Size	AC Magnetic Field	User
Magnetite (Fe_3O_4) surface functionalised with vitalic ascorbic acid and dispersed in methyl cellulose gel	1, 5 mg/ml	40 nm	523 kHz – 24 mT AMF mediated nanoparticle heating in swine tissue	Gareth Cave School of Science and Technology, Nottingham Trent University
Maghemite (Fe_2O_3)	50 mg/ml	6 to 14 nm	110 kHz 168 kHz 176 kHz 262 kHz 335 kHz 474 kHz 523 kHz 633 kHz 739 kHz – <9 mT	Antonio Hernando group Departamento de Física de Materiales, Universidad Complutense de Madrid, Spain
Magnetite (Fe_3O_4) spheres	30 mg/ml	22 nm	111 kHz – 25 mT and 629 kHz – 9 mT	Hugh D. C. Smyth Group College of Pharmacy, University of Texas at Austin, USA
Magnetite (Fe_3O_4) polymorphous nanocrystals	30 mg/ml	22 nm	111 kHz – 25 mT and 629 kHz – 9 mT	Hugh D. C. Smyth Group College of Pharmacy, University of Texas at Austin, USA
Magnetite (Fe_3O_4) nanowires	30 mg/ml	55 × 2 nm	111 kHz – 25 mT and 629 kHz – 9 mT	Hugh D. C. Smyth Group College of Pharmacy, University of Texas at Austin, USA
Maghemite (Fe_2O_3) ***In vivo* implant material - PVC tubing, 3 mm diameter x 15 mm length** **Breed - ICR (45 g mouse)**			*In vivo* AMF mediated nanoparticle heating using magneTherm	Jon Munson Scientific research manager, University of Florida, USA
Magnetite (Fe_3O_4) dispersed in Dulbecco's modified Eagle medium (DMEM) + 10% foetal bovine serum	2 to 4 mg/ml	13, 14, 15, 16, and 18 nm	376 kHz - 17 mT	Kannan M. Krishnan group Department of Materials Science and Engineering, University of Washington, USA
Magnetite (Fe_3O_4) - ***in vitro* magnetic fluid hyperthermia experiment with JURKAT cells**	1 to 3 mg/ml	~10 to 25 nm	373 kHz - 17 mT (*in vitro*)	Kannan M. Krishnan group Department of Materials Science and Engineering, University of Washington, USA
Magnetite (Fe_3O_4), **Maghemite (Fe_2O_3)**	10 mg/ml	5, 28, and 45 nm	110 kHz – 25 mT	Kevin O'Grady group Department of Physics, The University of York, UK

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Maghemite (Fe_2O_3)	1, 5, 20, 100 mg/ml	50 nm	110 kHz – 25 mT 168 kHz – 17 mT 176 kHz – 23 mT 262 kHz – 23 mT 335 kHz – 17 mT 474 kHz – 11 mT 523 kHz – 20 mT 633 kHz – 9 mT 739 kHz – 16 mT 987 kHz – 12 mT	nanoTherics Limited, Keele University Science and Business park, UK
Magnetite (Fe_3O_4) surface functionalised with citric acid	20 mg/ml	50 nm	110 kHz – 25 mT 168 kHz – 17 mT 176 kHz – 23 mT 262 kHz – 23 mT 335 kHz – 17 mT 474 kHz – 11 mT 523 kHz – 20 mT 633 kHz – 9 mT 739 kHz – 16 mT 987 kHz – 12 mT	nanoTherics Limited, Keele University Science and Business park, UK
DMSA stabilised Magnetite (Fe_3O_4) dispersed in water (Pulse AMF mediated nanoparticle heating)	10 mg/ml	15 nm sized particles from Vijay Patel group liquid research, York, UK	110 kHz – 25 mT 168 kHz – 17 mT 176 kHz – 23 mT 262 kHz – 23 mT 335 kHz – 17 mT 474 kHz – 11 mT 523 kHz – 20 mT 633 kHz – 9 mT 739 kHz – 16 mT 987 kHz – 12 mT	nanoTherics Limited, Keele University Science and Business park, UK
Magnetite (Fe_3O_4) surface functionalised with polyethyleneimine – hydrochloric acid matrix	1 mg/ml	100 nm sized Polymag Particles from Chemicell	110 kHz – 25 mT 168 kHz – 17 mT 176 kHz – 23 mT 262 kHz – 23 mT 335 kHz – 17 mT 474 kHz – 11 mT 523 kHz – 20 mT 633 kHz – 9 mT 739 kHz – 16 mT 987 kHz – 12 mT	nanoTherics Limited, Keele University Science and Business park, UK

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Maghemite (Fe_2O_3) coated with Silver (Ag) Magnetite (Fe_3O_4)	20, 30 mg/ml		110 – 25 mT and 523 kHz – 24 mT	Mohamed Abdellah O.M. lemine group Physics department, Al-imam Mohamed Bin Saoud university, Saudi Arabia
Cobalt-doped Magnetite (Co_x-$Fe_{3-x}O_4$)	25 mg of biogenic particles were coated with CA	2 to 3 nm; 10nm; and 30 to 40 nm	87 kHz – 20.5 mT 110kHz – 20.5mT	Neil Telling group Institute for Science and Technology in Medicine, Keele University, UK
Magnetite (Fe_3O_4), Maghemite (Fe_2O_3) Surface functionalised with Poly ethylene glycol and dispersed in Oleic acid	14.5, 19.8 mM	4 and 9 nm	987 kHz – 9.5 mT	Nina Gomez Blanco group CIC bioGUNE Spain
Fe Core/ Fe oxide Shell		20 nm	336 kHz – 17 mT	Richard Tilley group Victoria University of Wellington, New Zealand
Maghemite (Fe_2O_3) coated with Gold (Au)	6 mg/ml		110 – 25 mT	Sotiriou Georgios, ETH-Zurich, Switzerland Current address: Department of Environmental Health, Harvard University
Iron oxide nanocrystals (IONCs)		13 to 40 nm	520 kHz and 700 kHz	Teresa Pellegrino group Istituto Italiano di Tecnologia, Italy
Fluoresceineamine (FA) was bound to a thermo-sensitive molecule i.e. azobis[N-(2-carboxyethyl)-2-methylpropionamidine] at the Maghemite (Fe_2O_3) nanocrystal surface functionalized with poly ethylene glycol (PEG) spacers of different molecular weights.			AMF-triggered drug release system [covalently linked doxorubicin IONP surface bearing the thermo-labile molecule killed KB cancer cells]	Teresa Pellegrino group Istituto Italiano di Tecnologia, Italy
Colloidal Greigite (Fe_3S_4) Nanoplatelets dispersed in toluene		10 to 20 nm in lateral sizes	110 and 330 kHz – 17 mT	Teresa Pellegrino group Istituto Italiano di Tecnologia, Italy
Fluorodeoxy Glucose coated magnetite	4 mg/ml	10 - 20 nm	230 and 500 kHz – 16 mT	Perihan Unak group Ege University, Turkey
Tobramycin coupled to iron oxide nanoparticles		18 nm	Biofilm treatment	Hugh D. C. Smyth group The Univ. of Texas at Austin
PEG-coated iron oxide nanocubes	700 µg of iron	19 nm	111 kHz – 25 mT	Florence Gazeau Group Laboratoire Matière et Systèmes Complexes, CNRS/Université, France
MgZn nanoferrites			Thermal variation studies	Kim Group Kookmin University, Yonsei University, Seoul, Korea;
Co or Zn dopped ferrite nanoparticles synthesized by bacteria	1.5 and 5 mg_{Fe}/ ml		87 kHz to 998 kHz	Neil D. Telling group, Keele University, UK
poly(acrylic acid-co-maleic acid) coated MNPs and branched polyethylenimine (PEI)	10 and 15 md_{MNP}/ ml	14 - 15 nm, ~120 nm	110.7 kHz - 25 mT	Etelka Tombácz group, Hungary

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PLGA magnetic micro/nanoparticles	100 mg	221 nm	355 kHz - 1 mT	Hugh D. C. Smyth Group, The University of Texas at Austin, USA
Iron-Filled Multi walled Carbon Nano tubes Surface -Functionalized with Paramagnetic Gd (III)	5 mg/ml		696 kHz – 10 mT	Mark Baxendale Group, Queen Mary, University of London, UK
water-soluble rhamnose-coated Mn1-XCoxFe2O4 nanoparticles		6-12 nm	473 kHz - 11 mT	Jerome Long group, Institut Charles Gerhardt Montpellier, Universit Montpellier II, France
Poly(Gallic Acid) Coated Iron Oxide Nanoparticles	15 mg/ml	~170 nm	110.7 - 25 mT	Etelka Tombácz group, University of Szeged, Hungary
γ - Fe2O3 nanoparticles		14 nm	110 to 523 kHz – 10 mT	O M Lemine group, Al Imam Mohammad Ibn Saud, Islamic University (IMSIU), Saudi Arabia.
Ferromagnetic CarbonNanotubes	5 to 75 mg/ml	length around 30–50 μm and diameter of 30–60nm.	530 – 10 to 25 mT	Slawomir Wiak group, Lodz University of Technology, Poland
MgZn nanoferrites (Mg1−xZnxFe2O4)	0.2, 0.4, 0.5, 0.6, 0.8 Volume fraction		50-25 mT	Kim Group, Kookmin University, Yonsei University, Seoul, Korea;
α-Fe2O3–SiO2 (hematite–silica) binary oxides				Kannan group, Pondicherry University, India
magnetic doxorubicin delivery system (Fe2O3@DOX-MIP); Maghemite-Doxorubicin- Molecularly imprinted polymers	50 mM	11 nm	335 kHz - 9 mT	Christine Ménager group, Sorbonne Universités, UPMC Univ Paris, CNRS, Laboratoire PHENIX, France
Cobalt ferrite and manganese ferrite coated with tetramethyl ammonium hydroxide (TMAOH) and dispersed in water or with oleic acid (OA) (aggregated) and dispersed in hexane (disaggregated)	1 - 10 wt%	12 nm	110 kHz – 20 mT	P.dela Presa group, UCM, Ciudad Universitaria, Spain
uniform superparamagnetic Fe2O3 nanoparticles coated with a nanothin layer of amorphous SiO2			For triggered drug release from alginate hydrogels studies	Georgios A. Sotiriou group, ETH Zurich, Switzerland
Iron oxide nanoparticle/wax composite capsule coating			Coating protects the capsule contents from the highly variable chemical conditions of the GI tract. It can be triggered using magnetic hyperthermia initiated from an external AC magnetic field.	Andrew G. Mayes group, University of East Anglia, Norwich Research Park, UK
DMSA stabilised magnetite particles	5 mg/ml	15.2 nm	522 kHz – 20 mT	Arkadiusz Miaskowski group, University of Life Sciences in Lublin, Poland

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Silicon-Coated Superparamagnetic Iron Oxide Nanoparticles		~300 nm	For Targeted Molecular Imaging and Hyperthermic Therapy of Prostate Cancer studies	Nicholas Whiting group, The University of Texas MD Anderson Cancer Center, USA
ZrxFe3−xO4 (0.01 ≤ x ≤ 1.0) based ferrofluids nanoparticles at different concentrations			112 kHz – 25 mT, 337 kHz – 17 mT, 637 kHz – 9 mT, 173 kHz – 23 mT, 479 kHz – 11 mT	N. K. Prasad group, Indian Institute of Technology, Banaras Hindu University, India
Fe3O4 nanoparticles and photosensitizer conjugated hyaluronic acid (AHP)		108.13 ± 1.08 nm	Enhanced tumor therapeutic effects through photodynamic/hyperthermia-combined treatment without any drugs	Kun Na group, CUK-WASEDA Center for Nanotech Research, The Catholic University of Korea, Republic of Korea
Aminodextran polymer-functionalized reactive magnetic emulsions			The developed magnetic submicron particles exhibited good potential for in vivo biomedical diagnosis applications as demonstrated by their higher T2 contrast-ability compared to Gd in magnetic resonance imaging (MRI) and hyperthermia.	Abdelhamid Elaissari group, University of Lyon, France
TAT Peptide-Conjugated Magnetic PLA-PEG Nanocapsules			For the Targeted Delivery of Paclitaxel: In Vitro and Cell Studies	Konstantinos Avgoustakis, University of Patras, Greece
magnetic nanoparticles decorated with Au seeds (MagNP-seeds	[Fe] = 3.5, 7, 15, 30 and 60 mM	47 ± 6 nm, 53 ± 7 nm, 63 ± 11 nm	110 kHz – 25 mT	Claire Wilhelm and Ali Abou-Hassan group, CNRS and Université Paris Diderot; Université Pierre et Marie Curie UPMC-CNRS, France.
maghemite nanoparticles dispersed in water and in glycerol		10 nm and 20 nm		Vincent Dupuis group, Sorbonne Universités, UPMC Univ Paris, France
FeO/Fe3O4 core-shell nanocubes	1–2 mg/ ml	average edge length of 17 ± 2 nm	330 kHz - 17 mT	Teresa Pellegrino, Istituto Italiano di Tecnologia, Italy
Magnetic iron oxide nanomaterial (ION) hybrid			165, 173, 737 kHz	Hamdan group, Universitie Malaysia Terrengaanu, Malaysia

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poly(methacrylic acid)-g-poly(ethyleneglycol methacrylate) polymers coated magnetite nanocrystallites			nanoparticles were radiolabeled with ^{68}Ga for PET scanning; And MRI response for dual imaging; Enhanced anticancer efficacy and reduced toxicity was recorded for the cisplatin-loaded nanocarriers in comparison to the free cisplatin, particularly when a magnetic field gradient was applied at the tumor site	Konstantinos Avgoustakis group, Institute of Nuclear and Particle Physics, NCSR "Demokritos", Greece
Magnetic thermo-responsive hydrogels (poly-N-isopropylacrylamide – SPIONs)				Alke Petri-Fink group, University of Fribourg, Switzerland.
Mesoporous iron-oxide nanoparticles (mNPs) prepared using mesoporous carbon	[Iron] = 0.2 M	99.5 nm	mNPs were first loaded with doxorubicin (Dox), an anticancer drug, and then coated with the thermosensitive polymer Pluronic F108 for controlled drug release studies 464 kHz	Ali Trabolsi group, New York University, United Arab Emirates