

# Multifunctional Nanoparticles for Magnetic Hyperthermia and Indirect Radiation Therapy (RADIOMAG)

<http://cost-radiomag.eu/>



Welcome to the December 2017 issue of the RADIOMAG newsletter!

## NEWS

### TRAINING SCHOOL (21-24<sup>th</sup> November)

The first training school "Multifunctional Nanoparticles for Magnetic Hyperthermia and Indirect Radiation Therapy" was organized within the RADIOMAG COST action by Eleni Efthimiadou (and her team) and Spiridon Spirou at NCSR Demokritos, Athens, Greece. The training school was attended by 25 participants from 9 countries and the lectures were given by local and international academics including 7 trainers from 5 different countries.



- The private section of the [RADIOMAG website](http://cost-radiomag.eu/) is available to all RADIOMAG members. It contains public and internal documents produced within the remit of the action. Check the website regularly so you do not miss out!
- Our colleague, Daniel Ortega, won the second price for the best poster presentation during the 12<sup>th</sup> annual ETPN (European platform on nanomedicine) conference. Congratulations to him and all his co-authors.



## NEW MEMBERS

We have new members joining our COST action. Welcome!

Dr. Oriano Bottauscio, Istituto Nazionale di Ricerca Metrologica (INRiM) Division of Metrology for Quality of Life, Torino, Italy.  
Francesca Brero (PhD student), Dipartimento di Fisica Università degli studi di Pavia, Italy (WG3)

Konstantinos Simeonidis, Department of Physics, Aristotle University Thessaloniki, Greece (WG2)

Prof Mónica López Fanarraga, Grupo de Nanomedicina, Departamento de Biología Molecular, Facultad de Medicina, Universidad de Cantabria – IDIVAL, Santander, Spain (WG1).

## FUNDING OPPORTUNITIES

EuroNanoMed III call is open (deadline for pre-proposals is January 16<sup>th</sup>, 2018). EuroNanoMed (ENM) is an ERA-NET on Nanomedicine, established in 2008, as a platform for funding agencies and ministries to coordinate research and innovation programmes. The goal of this call is to support collaborative research and innovation projects that can convert research in nanotechnology into practical gains in medicine.

Project proposals will address multidisciplinary and translational research. The project proposals must cover at least one of the following areas that are equal in relevance for this call: Regenerative medicine, Diagnostics and Targeted delivery systems.

More information is available here:

<http://www.euronanomed.net/joint-calls/9th-joint-call-2018/>

## CONFERENCES AND EVENTS

- **RADIOMAG Annual Action Progress Conference & MC meeting** in Timisoara (Romania), 22-23<sup>rd</sup> March 2018.
- The 12<sup>th</sup> International Conference on the Scientific and Clinical Applications of Magnetic Carriers (Magmeet) will be held in beautiful Copenhagen, Denmark, 22-26<sup>th</sup> May 2018.
- **E-MRS Symposium on NANOMEDICINE-** 20- 22<sup>nd</sup> June 2018, Strasbourg, France.
- **Nanotech France 2018**, 27- 29<sup>th</sup> June, Paris, France.

## BOOKS, DOCUMENTS and THESES

Our colleagues from the Working Group 3 have written guidelines for therapeutic pre-clinical, *in vitro* biocompatibility assays and pharmacokinetics of magnetic nanoparticles in the context of combining Magnetic Hyperthermia and Radiation Therapy. These guidelines are now available on the RADIOMAG website.

## PUBLICATIONS

Below are listed some of the more recent publications related to the general field of magnetic hyperthermia that were published by members of our action. (If your publication is not listed here, feel free to submit it through the relevant section in the RADIOMAG website.)

- Stanicki D, Vander Elst L, Muller R, Laurent S, Felder-Flesch D, Mertz D et al. Iron-oxide Nanoparticle-based Contrast Agents. In New Developments in NMR No. 13 - Contrast Agents for MRI: Experimental Methods, RSC 2018
- Hemery G, Genevois C, Couillaud F, Lacomme S, Gontier E, Ibarboure E, Lecommandoux S, Garanger E, Sandre O. *Monocore vs multicore magnetic iron oxide nanoparticles: uptake by glioblastoma cells and efficiency for magnetic hyperthermia*. Molecular Systems Design & Engineering. 2017 doi: 10.1039/C7ME00061H
- Moskvina M, Babič M, Reis S, Cruz MM, Ferreira LP, Carvalho MD, Lima SAC, Horák D. *Biological evaluation of surface-modified magnetic nanoparticles as a platform for colon cancer cell theranostics*. Colloids Surf B Biointerfaces. 2017 doi: 10.1016/j.colsurfb.2017.10.034

## INVITATION TO PUBLISH IN SPECIAL ISSUE

Olivier Sandre has been invited to guest edit an issue of **Nanomaterials**, an MDPI open-access journal, which will focus on "*Magnetic Nanoparticles in Biological Applications*". If you would like to contribute to the journal's special issue, please, contact Olivier ([olivier.sandre@enscbp.fr](mailto:olivier.sandre@enscbp.fr)) or find more information at:

[http://www.mdpi.com/journal/nanomaterials/special\\_issues/magnetic\\_nano\\_biol\\_application](http://www.mdpi.com/journal/nanomaterials/special_issues/magnetic_nano_biol_application)

## DISSEMINATION

Last October, as part of the RADIOMAG network, Eleni Efthimiadou from NCSR Demokritos, Athens, gave a series of seminars in Dublin. She was invited to present her work and RADIOMAG at St James's Hospital by Adriele Prina-Mello (Trinity Translational Medicine Institute, TCD) and at Trinity College Dublin by Oliviero Gobbo (School of Pharmacy and Pharmaceutical Sciences).



## RECENT RADIOMAG MEETINGS

Training School "Multifunctional Nanoparticles for Magnetic Hyperthermia and Indirect Radiation Therapy". Below is a selection of comments from some of the trainees:



"I highly appreciate the efforts of the organizer of the RADIOMAG Training School to gather together a large number of experts in Athens and to cover with lectures, discussion and practical sections, for only 4 days, almost all about MNPs, from synthesis to biomedical application. We had the unique opportunity to hear a lot of useful information, to figure out where we are now, to understand that we all share similar pleasure and problems while working with MNPs and after all, to create a picture of what we could do in the future. I have only compliments for everything and everyone and only one request to send us the materials/lectures, if possible of course!"

Marija Mirkovic, PhD, Belgrade, Serbia

"To instruct a multidisciplinary group with different backgrounds into fully understand the great potential of magnetic nanoparticles is not an easy task. However, this mission was easily accomplished by the RADIOMAG Training School on Multifunctional Nanoparticles for Magnetic Hyperthermia and Indirect Radiation Therapy.

This training school gave us the opportunity to see the whole pathway in magnetic nanoparticles, beginning with synthesis and functionalization, giving information about the correct characterization, how to fully assess their magnetic properties and how to apply them in therapeutics. These lectures were also complemented with relevant information on in vitro experiments to correctly reach excellence of in vivo results.

The best of this training school was the great coverage area that gave us the perspective on how to face problems and search for answers, even with few practical sessions which would be helpful when going forward with laboratory work. It was also very helpful to get to know other colleagues and their work, so the exchange of experiences was very positive.

It was unquestionably an honour to have the opportunity to know, listen and learn from this exceptional group of instructors, and being a part of this great COST action."

Ana Isabel Barbosa, PhD student, Porto, Portugal

## FUTURE RADIOMAG EVENTS

**RADIOMAG Annual Action Progress Conference & MC meeting in Timisoara, Romania, 22-23<sup>rd</sup> March 2018.**

Plenary type sessions will provide an overview of the latest research and common networking activities in RADIOMAG. During Working Group sessions the progress of specific tasks will be discussed.

**ITC conference grants.**

A new call of interest will be launched in January 2018.

## WILLING TO JOIN US?

If you are an expert in radiation physics, radiology or instrumentation for magnetic hyperthermia, you can still join us by sending an email to: [simo@meteo.be](mailto:simo@meteo.be), or [daniel.ortega@imdea.org](mailto:daniel.ortega@imdea.org)