NANODRUG

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newsletter

Issue 2—March 2012

The family grows: Four Early Stage Researchers joined NANODRUG and three more will start soon.

So Saar so good: NANODRUG Fellow addresses German conference.

A Class Act: Outreach program pitches the NANODRUG project to curious young minds.

MARIE CURIE ACTIONS

PEOPLE

Queen Mary University of London

Recruitment

Michela Comune

(CNBC)

Michela Comune was born in Cagliari, the capital of the island of Sardinia (Italy), and it is known as the pearl of the Mediterranean Sea. She lived and studied in Cagliari until December 2007 when she achieved her Bachelor's Degree in Biomedical Engineering from University of Cagliari.

After receiving this first important goal, she moved to Pisa (Tuscany, Italy), where she obtained her Master's Degree in Biomedical Engineering (curriculum: Biomedical Technologies) from University of Pisa by discussing a thesis titled "Development and Characterization of Polymeric Therapeutical Nanofilms for the Gastrointestinal Tract" in June 2011. She carried out her thesis at the Center for Micro-Biorobotics of IIT (Italian Institude of Technology) and Scuola Superiore Sant'Anna in Pontedera (Pisa), both located in Pontedera (Pisa). The aim of her work was about the possible use of nanofilm as therapeutic patches in ulcerative disease (e.g. Inflammatory Bowel Disease) of the gastrointestinal mucosa and as an innovative technique for the local release of anti-inflammatory drugs. Part of this work was presented in Poster form at CLINAM 2011 (4th European-Conference for Clinical Nanomedicine) in Basel on 23/05/2011.

Starting from December 2011, she lives in Coimbra, a very nice town, known for the country's oldest and most prestigious university, The University of Coimbra, where she is enrolled in the Biosciences PhD Program. She is also employed as an early stage researcher within the Marie-Curie Research Training Network NANODRUG at the Center for Neuroscience and Cell Biology (CNC) of the University of Coimbra, in cooperation with Biocant.

Her main research interests are in the fields of nanomaterials, drug-delivery and biology and medicine too. Michela likes play tennis, jogging, listening to music, reading and travelling in her spare time.

Jacqueline Maximilien

(CNRS)

Jacqueline was born and raised on the small island of Barbados in the Caribbean. She received a BSc degree in Biology and Chemistry from the University of the West Indies in Barbados in 2004. As a component of this degree she completed a Biochemistry research project during the summer of her final year and received her first taste of life as a scientific researcher.

Jacqueline completed her MSc degree in Pharmaceutical Science and Medicinal Chemistry at Loughborough University in the UK (Dec 2007). She was fortunate to secure an industrial placement at Pfizer Global Research and Development during the final semester of her studies and gained valuable experience in industrially relevant research.

Following her industrial placement, Jacqueline worked for three and a half years as a formulation scientist at Pfizer Global Research and Development in Sandwich, Kent UK. She has experience in manufacturing and testing novel formulations for inhaled and oral delivery.

Currently, Jacqueline has started her PhD studies at the Centre Nationale de la Recherche Scientifique, Université de Technologie de Compiègne (UTC) and has interests in developing novel formulations for enhanced drug delivery via the skin.

In her spare time, Jacqueline enjoys, ju jitsu, reading mystery novels, hanging out with friends and travelling around the world.

"Push the boundaries! If you don't ask the answer will always be 'no'"

Asli Arslan

(MJR)

Asli Arslan was born in Izmir, Turkey. Izmir is known as the pearl of Aegean region. It is Turkey's third largest city and second most important port. She lived in Izmir until her graduation from Ege University, Faculty of Natural Sciences, Biochemistry Department.

She moved to Istanbul right after her graduation where she worked as a Scientist at Reasearch and Development department of pharmaceutical companies for the last two years. During these years she had developed and strengthen her skills regarding the relevant topics such as development of HPLC, GC, dissolution testing methods, deep understanding of relevant ICH and FDA guidelines, and stability study designs under GMP conditions.

Asli is currently registered as a PhD student at the Pharmaceutical Nanotechnology Department, University of Saarland, Germany, in cooperation with MJR-Pharmjet GmbH where she is employed as an early stage researcher within the Marie-Curie Research Training Network NANODRUG.

Apart from work Asli likes reading, travelling and spending time with her cats.

Selim Beyazit

(CNRS)

Selim was born in 1986 in Sakarya, Turkey. He finished primary and high school in this small town and then joined the Izmir Institute of Technology to study chemistry.

In 2009, he obtained his BSc degree. The same year, he registered for a MSc program at Istanbul Technical University. In 2011, he finished his MSc program in chemistry. During his master program, he worked on polymer chemistry, mainly photoinitiation techniques, synthesis of block copolymers.

In 2012, he started his PhD studies at the Centre national de la recherche scientifique, Université de Technologie de Compiègne, France within the Marie-Curie Research Training Network NANODRUG.

Apart from work, Selim likes to play basketball, to write blog, to read about history, popular science etc.

Outreach Activities

Nanodrug World

by Michela Comune (ESR at CNBC)

I started my adventure in "Nanodrug world" in December 2011and three months later I can say I am very glad and enthusiastic to work on this project. each day it fascinates me more. I joined in a great group of experts who are very nice and helpful people. I like BIOCANT park, the Biotechnology Innovation Center, and the CNC, Center for Neuroscience and Cell Biology, where I usually carry out my experiments and study for my PhD. I am enjoying my life in Coimbra, I like the romantic beauty, the Mondego river and the unique academic atmosphere that you can breathe. I have found each element really important and necessary to stay well and to do the best I can!
Giving my first presentation regarding Nanomedicine & Applications

In February 2012 I was invited to give a presentation about the applications of Nanomedicine in the "Centro de ciência junior" laboratory in Biocant Park (Cantanhede, Coimbra).

The "Centro de ciência junior" is a laboratory where secondary school students spend their afternoon participating actively in experiments specifically designed for different age groups, where they can learn more about Biosciences. The aim of this Center is to add the experimental component to the Biosciences teaching so that students are able to better understand the importance of biosciences. The "Centro de ciência junior" wants to attract students to the scientific research field, and in this lab each student can be a scientist and feel like real researchers and entrepreneurs.

The goal of my talk was to teach students what nanotechnology is and the meaning of nanomedicine. This gave them an overview about the different applications. She explained the benefits of going and using "nano" in biomedical applications and discussed the use of nanoparticles for drug delivery in cancer therapy. She also focused their attention on the use of gold nanoparticles that, thanks to their unique properties, are generating an increasing interest in biomedical application for treatments of diseases.

I gave a talk to a class of twenty 16-17 year olds students and their teachers who showed a keen interest in the topic and who asked many questions.

Students wanted to know more about the synthesis of gold nanoparticles and the optical properties because they remained fascinated by the change in color observed when in nanoparticulate format. They were really surprised to discover that nano gold looks red, orange, blue and not shiny and golden!!! Teachers asked more specific questions regarding the drug delivery mechanism of the nanoparticles and surface modification. They wanted to know more about the current research into the application of nanoparticles for the treatment of diseases.

Finally, the class enjoyed taking some group photos and I arranged an appointment in the next months for a another presentation and to do a short experiment in which they will synthesise gold nanoparticles and analyze the change in color and UV spectra with them.
All my work is in progress...

Michela

I started my PhD in September 2011 at Queen Mary, University of London in the School of Biological and Chemical Sciences under the supervision of Dr. Marina Resmini. The aim of my project is to develop new thermoresponsive nanogels as delivery vehicles for skin disease treatments.

In December 2011 I went to visit Saint Paul's Way Trust School in London to give a presentation about my research. The talk was entitled "Drug delivery systems for Skin Disease". As the audience was around 12-14 years old I had to ensure that I targeted my presentation to this age group using lots of illustrations to make sure they could understand. In particular, illustrations were used to explain about nanotechnology so they could comprehend the small scale at which we work. I talked about medicines, both how they are formulated and also the importance of the drug carrier to achieve therapeutic effect.

To explain the effect of a change in temperature on my nanogels I used an analogy: a sponge! If it is full of water and you squeeze it, the water is released. Our nanogels, once loaded with drugs, will be able to work in the same way and as my nanogels are thermoresponsive they shrink and release the drug on a change in temperature.

One of the most important reasons of going to the senior school was to motivate students to choose a career in science. The science teacher in the school told me that due to the influence of current TV shows, adolescents today predominantly want to be football players or singers! Taking this into account I explained to them about University, the importance of getting a good degree and how, for me, this opened the door to doing a PhD. I also explained to them the gratification of contributing to developing ways of treating people, that one day might be used as a cure.

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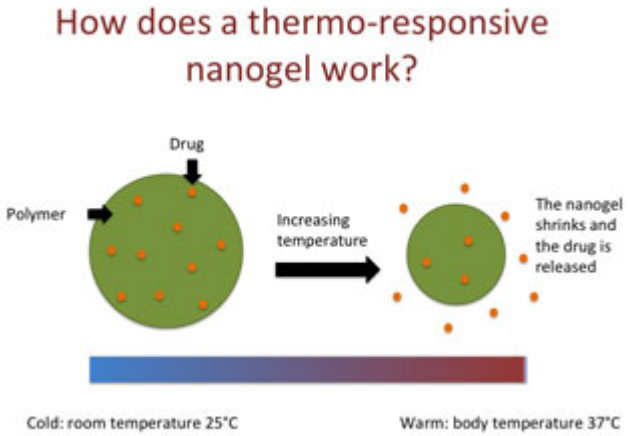


9th International Conference and Workshop on Biological Barriers – in vitro and in silico Tools for Drug Delivery and Nano-safety Research

By Asli Arslan (ESR at MJR)

The Biological Barriers conference was held from 29th February to 9th March 2012 at Saarland University Saarbrücken in Germany.

The meeting opened with Prof. Howard Maibach's talk on "Relevance of in vitro studies for dermatological research". I believe all participants were impressed by his presentation and his personality as much as I was. He talked about the history of in-vitro skin studies. The most impressive part of his talk, besides his scientific knowledge, was about the fact that he has lived throughout the evolution of in vitro studies. In spite of being 83 years old he looks very young and sportive. He did not lose his concentration throughout any of the presentations by participants and he even participated in the practical part of the conference and workshop.

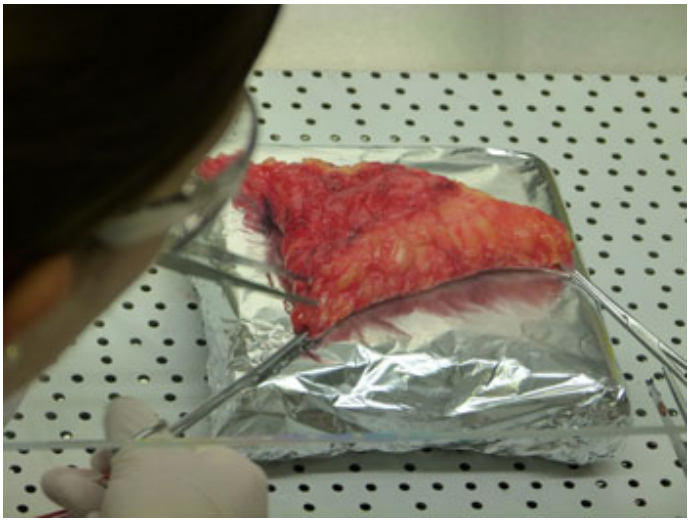
The first day contained four different sections and topics. The first part was "Reaching the immune System via the skin: New Vaccines and Adjuvants- Challenges and Opportunities". The second part was " Emerging Needs and Models in skin Delivery".

I was very impressed by one of the presentations about "Transdermal hyposensitization". Thomas M. Kündig gave a talk on Hay fever which is an allergic skin disease, and about the treatment strategies. The most significant part of his presentation was the prevalence of allergic diseases and the hygiene hypothesis. According to this hypothesis, the risk of developing allergies is lower if you are a cat owner. As a person who lives with two cats, this hypothesis makes me very happy. Cats versus allergies!

After the lunch break the meetings moved on to the third part of conference. In this section new technologies were covered to overcome the skin barrier. The last part

of the first day was very exciting and competitive "Round table: Skin Lipids- What is the state of Art." Five different participants defended their studies and their hypothesis about the structure of skin lipids. As a conclusion, understanding the complex skin structure is still a big challenge.

During the second day, after all the presentations on nano-medicine for dermal applications and analytical and visualisation tools, the lab course started with skin preparation and permeation experiments.



This lab course was very beneficial for me. The course provided me with a chance to see and get in touch with many techniques that I only knew from literature.

On Saturday, 3rd of March all young scientists attended a workshop on scientific writing and plagiarism detection by Elsevier. We watched a very funny movie about plagiarism. I believe that the participants gained very useful information about plagiarism and its consequences.

After Elsevier's workshop, Axel Koch, head of the Patent Marketing Agency of Saarland Universities, informed participants about criteria that have to be fulfilled in order to receive a patent grant for a scientific result

Claus-Michael Lehr, Saarland University

Tamara Minko, Rutgers University

and how to find out if a new idea is still protectable.

The second week of the conference resumed with different topics such as nanomedicine, nanotoxicology and safety of nanomaterials.

On Tuesday we were transferred to the European Academy in Otsenhausen at 7.30am! that was very early for everyone, surprisingly I was able to catch the bus. However I could not wake up until the first speaker started his presentation. At the end of the day we had a very nice dinner while listening to a nice jazz band. From a scientific point of view, I found the chance to obtain the latest information about bionanosensors, nanomedicine for cancer therapy and advanced drug delivery technologies. It was a great success for the organisation committee to be able to bring together such important scientists in their field such as Prof. Dr. Ulrich S. Schubert and Prof. Dr. , Alexander Kabanov.

In conclusion, I found the "Biological Barriers 2012" very interesting as the content of every part was very close to my PhD study and it gave me the opportunity to get to know more people. At the end of the conference, I joined the party organized by PhD students who study at Saarland University and I enjoyed a German beer!

Asli

Asli with her colleague, Nazende Günday from MJR

Network Events

1st NANODRUG Summer School
Queen Mary, University of London
24-27 June 2012

1st NANODRUG International Scientific Meeting
Queen Mary, University of London
28-30 June 2012

All researchers will have to arrive at QMUL on Sunday 24th June 2012 and leave on Saturday 30th June 2012 and attend all the organised workshops and meetings. Rooms have been booked at QMUL campus for 6 nights for all participants.

The topics covered at the school will range from Colloidal Chemistry and Analytical techniques for colloids, Microgels and nanogels syntehsis and characterisation, Nanoparticles for drug delivery, The skin and its in vitro models, among others. There will also be a section on transferable skills, including how to manage your project, doing a PhD, giving an oral presentation etc.
The International Scientific Meeting will start on Thursday 28th June at 9am and finish on the friday 29th June evening with the Gala dinner.
All NANODRUG researchers and bursaries attending the scientific meeting will be required to give a 15 minutes presentation at the scientific meeting on their project, even if they only started recently.

For more information on these events please visit the NANODRUG intranet (http://www.nanodrug.qmul.ac.uk/intranet.html). If you have lost your login details contact the Network Administrator.

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