



NANOSTEM

Developing new **NANO**materials for neural **STEM** cells drug delivery

Newsletter
Issue 1—February 2019



The NANOSTEM PIs at the NANOSTEM kick off meeting that took place in London. 3-07-2018

NANOSTEM has started!!

An article by Prof Marina Resmini, coordinator

On the **1st of June 2018**, almost 12 months after the REA's email notifying us of the success of our proposal, the **NANOSTEM** project finally started. Immediately, Ana, our project manager, started organising everything: website, paperwork and the first network event!

In July, the PIs and representatives arrived in London for the kick-off meeting. It was lovely to see old friends, such as Lino, Klaus, Anke or Nazende, and meet new members of the Network. We spent two days discussing the project, recruitment, secondments and administrative/technical challenges. The energy and enthusiasm of everyone was contagious! In fact, we agreed to organise an additional meeting for the PIs focused only on science just after Christmas, to maximise interactions and collaborations.

During the meeting, we attended a session on PhD supervision where we discussed the different rules of the Doctoral Schools in our countries: length of a PhD (4 years in Portugal but only 3 in the UK), the requirement of a minimum of 3 papers to obtain a PhD in Austria, etc. We also discussed the importance of good supervision and the support that our fellows will need throughout the project. It was an excellent meeting and a wonderful opportunity to discuss science and PhD training!

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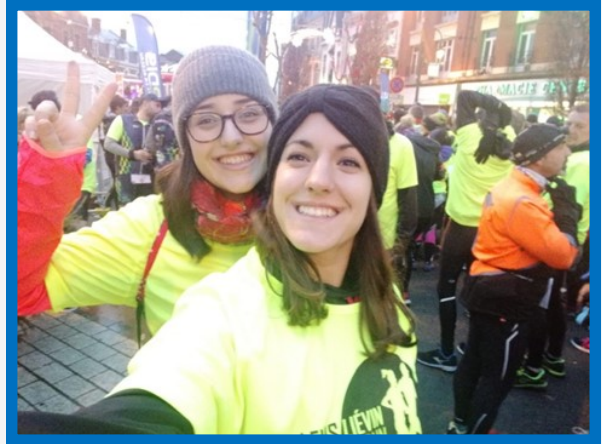
Elisa and Eleonora's first 5 months as NANOSTEM ESRs

A new chapter started on September 2018

An article by Eleonora Rizzi, ESR

Looking for a job, a position, is not easy. Doubts and uncertainties are always present, but if you really want something, you keep going, you keep searching. You bump into the right position somehow by chance, surfing on the net, or maybe through a friend.

My PhD started with a friendship, one of the project's ESRs, Elisa Liliana Jimenez Moya, is also one of my lab mates, and with her, I moved my first step in the project.



Eleonora and Elisa, in Urban Trail 8km. 01.12.2018. Lens, France.

The first months were all about reading and learning, since this is a completely new field for me, I needed to start understanding: what am I really going to do? In the firsts weeks, I didn't really wear a lab coat, I needed to gain lots (and lots) of knowledge and notions on the field but luckily this was not so terrible thanks to the great lab team that I found. They helped me a lot and guided me. I needed to understand and learn new techniques far from what I already knew and also to understand how to move in a new

lab, where to find things to be independent and use new instruments. So, a huge amount of notions, a bomb of new information, all to learn! Of course, not everything was work, but also lots of fun!

Eleonora



Eleonora: "When you are far from home, with new people and in a new country, friendship grows really fast and help you to overcome your weaknesses, as for my fear of heights: so I started climbing with my colleagues!"

From Granada (Spain) to Lens (France)

An Article by Elisa Moya, ESR

Everything started in July 2018, when I received the great news that I had been selected for the vacant position in NANOSTEM project in the frame of the European Training Network of Marie Curie Actions. And from that point, everything began to run very fast. Many

preparations, many goodbyes. A new life and adventure of 3 years was about to begin. I moved to Lens in September 2018. France was cold, but the people there made it felt warm. I started my PhD at the laboratory LBHE (Laboratoire de la Barrière Hémato-Encéphalique) under the direction of Pr. Marie-Pierre Dehouck. Firsts days in the laboratory were dedicated to deal with all the documents, introduction to all the members, lab work and NANOSTEM Project. I have to say, that everyone in the lab were very kind and always ready to help. Very soon they became like a family. Specially my supervisor Marie-Pierre, that was always by my side helping me in everything I needed.

Fist day I went into the office and I met the others PhD students, I knew, that I was in the right place. People from different nationalities (Belgium, Brazil, France, Italy and Spain), sharing the same office, only can gave us good things, like, new knowledge, fun, more confidence... I consider myself very lucky being in LBHE, not only for my supervisor and co-workers, but specially also for Eleonora Rizzi, another



Eleonora and Elisa at the group's Christmas party



SECONDMENT

From Lens to Überherrn, Germany

In January 2019, I moved to Germany for one month, to start my first secondment, in MJR Pharma, under the supervision of Dr. Nazende Günday-Türelı. Here, I met another NANOSTEM Project fellow too, Sonia Lombardo. The first week, I had some fundamental trainings as, work safety, data protection, SOP training, and GMP documentation. Mainly, I am training in how to prepare nanoparticles, its characterisation via DLS and the use of Microjet reactor. The opportunity to work and research in a Pharma is giving me another different point of view than the university work. Moreover, the experience of collaborate in other important part of the project, which is development of these special nanoparticles which are expected to cross the BBB, and soon, they will be involved in the *in vitro* model experiments.

Elisa

Photo: Sonia and Elisa, MJR Pharma, Überherrn 14.01.2019), Germany.

ESR form NANOSTEM Project.

We have been

training together, and we will work side by side during these 3 years. There is a sentence that I really like which says "If you want to go fast, go alone. If you want to go far, go together". I found in Eleonora not just a co-worker, I found a soulmate.

During four months I have been training and learning a lot in the lab. My part of the project consists in development of a BBB (blood brain barrier) assay that allows improved screening of higher number of compounds. I learnt how to create a BBB model *in vitro*, in a co-culture or tri-culture, and how to performer different experiments like, toxicity and permeability experiments, immunostainings, DNA and RNA isolation, RT-PCR and immunofluorescence microscopy. Also the relative analysis of the data. Without forget all the maintenance of the lab material and workplace. Moreover, the research part of several papers to get into what is known or already developed. I also had the great opportunity to attend some scientific conferences, in Lille and in Paris. They have given me a lot of background and update in the BBB field.



Elisa

Established in 1992, **Artois University (UA)** is a medium-sized university with a student population of approximately 11.000 students. It is based in Arras (France) and a member of the Research and Higher Education Consortium of Lille - Nord de France. The University offers a wide spectrum of courses, from two-year undergraduate degrees to doctoral studies in all fields. Artois University also develops advanced research programs within its 16 approved research centres.



First steps of the CNC team in the NANOSTEM

Four months in Portugal

An article by Francesca Tomatis, ESR

Four months have already passed since I started my PhD: I ran from an experience to another without stopping and just now, on my way back to Portugal after Christmas holidays, I am thinking about them and realizing all the wonderful moments I have lived in the last period. I have been working in two labs, different but both amazing, and I have started to know two wonderful cities with interesting cultures, but



Inês and Francesca in Coimbra

what really made this time unforgettable are, of course, the people.

When I arrived in the country that will host me for at least three years, everyone helped me and Susana, my supervisor, became the symbol of the Portuguese kindness in my head. I was welcomed by Ines's smile and elegance, Ricardo's political opinions, and Catarina's tenderness. Little by little I started knowing the members of the big group and I really had good time when going out together for dinner. Meanwhile, I started visiting Coimbra with its climbs: I discovered the wonderful

botanic garden, the narrow streets of the historical centre with restaurants selling good fish, the breathtaking view from the top of the University tower and the romantic sunset on the Mondego. Thanks to Ines, who turned into a perfect guide, I spent a pleasing day in Aveiro, the so-called "Portuguese Venice" 60 km north of Coimbra. There I could taste the huevos moles and admire the ocean while walking on the beach. In a short period of time I understood my PhD will represent not only the occasion to learn a lot about interesting research fields, but also the possibility to spend the next years in a fantastic country.

As soon as I was finally starting to understand a bit of Portuguese and I was finding things in the lab without continuously asking for help, I left for my first secondment. I went to Munich, in Germany, in order to learn how to culture neural stem cells and how CRISPR/Cas9 works and can be exploited. There I found a small but extraordinary group that made me feel accepted and integrated from the first day. I have been touched by Julia's inexhaustible happiness, Andrea's desire not to make me feel alone, the goodness of Chris's heart and smile, Luis's interest for Italian traditions, and the way all the group was always ready to organize something together. They brought me into amazing restaurants: the most tasteful Chinese I have ever tried, a good Vietnamese, the Italian pizzeria that made me feel at home and then the German restaurant for the Christmas party. I have spent extremely enjoyable moments with the group in a month. I will never forget the laughs in the lab, working with Disney music and people that know ALL the lyrics, and the one month-long guesswork for the secret Santa. Of course, I took advantage of the weekends to discover the unexpectedly beautiful city, its endless beers, the characteristics Christmas markets, and the cheerfulness of the people.

Francesca

In just four months, my PhD experience already donated me astonishing emotions and meetings, so I am very thankful and excited to see what will happen in these years.

NANOSTEM Kick-In

An article from Inês Albino, ESR.

It has been four months since I started a PhD as part of the NANOSTEM team. This opportunity represented a challenging yet, most awaited step. My first months as a PhD student were shared with Francesca, my ESR buddy at UC-Biotech. We did not only quickly become friends, but we teamed up inside and outside the lab.

On September 28th, the European Researcher's Night took place at the beautiful botanical garden in Coimbra. We were there with the purpose of bringing science to a young audience but we didn't know we would end up having as much fun as they did.

There we introduced them to nanoparticles using classic board games such as domino or labyrinth to play with the concept. At the same time, but using a more visually appealing strategy we brought them a virtual reality headset. Wow, they were so curious they queued to have a glance at it! One week later we repeated the same success in a science fair where not only CNC was present but many other institutions across the country.

Besides the outreach activities we participated in, we looked for opportunities to get to know our new co-workers. With Winter approaching, we celebrated *Magusto*, a Portuguese celebration where chestnuts are roasted on a bonfire.

This time the group gathered around the table to enjoy chestnuts and other Portuguese treats. As chestnut was the key ingredient, this year the organization prepared a dessert contest. Hence, the NANOSTEM team picked an Italian recipe made of chestnut and chocolate to impress the jury. Surprisingly enough we won second place, what a nice reward! Although it was delicious, it has taken us one night to peel 2 kilograms of chestnuts.

More recently we have been so much focused in the lab, but we there will be more opportunities like this, which contribute to a happy working environment and for sure, guide us through successful experiments. Next month we will all meet in London for the first time and I can just tell I am looking forward to meet all ESR fellows and NANOSTEM team.



Inês and Francesca in Coimbra



Inês



CENTER FOR NEUROSCIENCE
AND CELL BIOLOGY
UNIVERSITY OF COIMBRA
PORTUGAL

The **Center for Neuroscience and Cell Biology (CNC)** is a non-profit research institute founded in 1990, aiming to foster biomedical research and multidisciplinary graduate teaching at the University of Coimbra (Portugal). CNC was the first established “Laboratório

Associado” in Portugal, and it has steadily increased the scope of scientific competences over the years, with a strong focus on the exploitation of the fundamental mechanisms of aging and brain diseases.

Patrick: first months at Innsbruck

An article by Patrick Quoika, ESR

In September 2018 I moved to Innsbruck, Austria, from Frankfurt, Germany. You might know both these places. Frankfurt has – amongst other things – this huge airport, whereas Innsbruck has – amongst other things – this big ski-jumping hill. Of course this by far does not capture all the differences between these two cities, but it already gives you a good idea...

Under supervision of Prof. Klaus Liedl, I joined the department of inorganic and theoretical chemistry at the University of Innsbruck. Already on the first day I could do my first small calculation in Innsbruck. (Yes, I am a computer guy...) Starting my PhD in the group was generally very uncomplicated. The members of the group are quite young and open so after one week I was not only able to be a little productive already, but also to have some relaxed conversation with my colleagues besides

detailed scientific discussions. I was offered the opportunity to learn the language (this is probably a joke, that only German speakers understand...), but also to learn how to drive properly in the mountains (apparently Germans have a tendency to drive slightly more slowly than most Austrians consider appropriate...). I was really happy to get to know my colleagues and the city of Innsbruck really quite well already within this considerably short period of time.

Besides the great atmosphere at work, Innsbruck offered the opportunity to discover the mountains in my free time. I used this as often as possible and spent almost every weekend there. Also for a city of that size it has remarkably many Christmas markets (The homepage of the city reports seven of them). Generally spending the Advent Season in Innsbruck was a very nice experience. I was lucky to enjoy nice Christmas parties and luckily, we were blessed with a nice snowfall shortly before Christmas. Now, in January, I moved to Paris in France, to do my Secondment at Sanofi for six months. Again the difference to the preceding residence was quite remarkable. Obviously there is less Pretzels in bakeries here, but rather Croissants... Additionally, in contrast to Innsbruck, which is surrounded by the Alps, here in Paris you find yourself in this giant city, which is most probably impossible to discover completely in half year. There is so many different places that you can go within Paris, that it is really hard to decide where to go first. I will definitely not be bored here in Paris, but I am also looking forward to the meeting in London in a few weeks. I am quite exited to meet and get to know the other members of the ITN and to hear about their experiences.



Mountains close to Innsbruck

Patrick

The **University of Innsbruck (UIBK)** was founded in 1669 and is the biggest and most important research and educational institution in western Austria. Today it is comprised of 28,000 students and more than 4,500 staff and faculty members. 16 faculties provide a broad spectrum of programs in all fields of study. Academics teach and research in the diverse scientific fields of humanities, science, economic and social sciences, theology, law, architecture, engineering, and teachers' training.

 universität
innsbruck
Wir bauen Brücken. Seit 1669

Sonia's first days in Germany

An article by Sonia Lombardo, ESR

I started working at MJR PharmJet on the 1st of October, 2018 but before that, I had to organize my big move from Paris to Altforweiler, a small village west from Saarbrücken, where the firm is located. To say it was a big change of scenery would not be an understatement but thanks to the help from Dr. Nazende Günday-Türeli and everyone at the company, my moving was done smoothly and I soon started to feel at home in this small town. The proximity with France makes this location perfect for me, as I can hardly complain about missing my country when I can drive to France in less than 20 minutes. On Saturdays, I even feel like in France, when the streets of Saarbrücken are filled with French people looking for good shopping deals. All of that made my transition to Germany really easy. The first months of my PhD were mostly training and reading Standard Operating Procedures (SOP). As all the SOPs were in German, a language I did not speak, I had to keep up and start learning this language. This tremendously helped me progress in a really short amount of time. I am still way far from fluent but I am proud to be able to at least understand basic sentences or to order by myself at restaurants.

During my first month at MJR, the firm was hosting a 2-day long meeting for another Horizon 2020 project and I was lucky to be able to attend. Seeing how all the partners interacted with each other, the problems they were going through and how they intended to fix them was extremely insightful for me, as I could see myself going through the same hardships in some months. After finishing reading SOPs, I started



MJR in Germany

literature search and bench-top nanoparticle preparations and I could really feel myself getting more and more involved in the project. I had my first presentation in front of the scientific team at MJR in October and two days later at Saarland University, where I will be registered as a PhD student under the supervision of Prof. Marc Schneider. It was my first time meeting his team and at that point I realized how lucky I was to be able to work at the same time in an industrial company and

in an academic environment, as I could benefit from both their points of view and insights on my project. Scalability, Good Manufacturing Practice from one side and a more fundamental approach on the other... And it also meant I was invited to twice as many Christmas parties.

The first 3 months of my PhD flew by like that. At the time I am writing this, we are expecting to receive the visit of Elisa, another NANOSTEM ESR, next week. I am really looking forward to meeting another NaANOSTEM fellow and to being able to work together. I am pretty sure after her visit, the word Network in ITN will have even more meaning.

Sonia



MJR PharmJet GmbH (MJR) is a medium sized company, 11-50 employees, based in Überherrn Germany. MJR is a member of the Instrillo group that focus on the development of methods for the production of nano- and microparticles in their proprietary technology microjet reactor. MJR product portfolio ranges from contract research to marketing their own formulation strategies and products.

Eirini: Adjusting in Birmingham

An article by Eirini Epitropaki, ESR



Eirini at Birmingham

The day that I got the e-mail of acceptance for the NANOSTEM program from my supervisor Professor Rachel O'Reilly I was delighted. I started at once preparing for this big change in my life. I booked an apartment (which I now regret because it's too far from the university), translated my degrees, booked my flight and tried to deal with the bureaucracy of relocating. The hardest part was opening a UK bank account, which took me at least a month after I arrived at Birmingham.

My first day at the University of Birmingham was a little frightening, because I didn't know where to go, who to meet, or what to do, but it was a matter of minutes until all this

questions were answered and the inductions, which were for safety training purposes started. The induction period lasted for about 1 week and afterwards the lab life started. It was really hard at the beginning because I had a lot to learn in a small period of time, while in parallel I was trying to deal with some administrative problems because I wasn't getting any payment. But over time everything was sorted out eventually.

As a PhD student, under the supervision of Prof. O'Reilly, in school of Chemistry at University of Birmingham, I was given the chance to learn about a lot of new things and exciting projects, but I also learned how demanding it is and how many responsibilities you have. Multitasking is inevitable and you must try getting the proper results from the first time you learn or perform an experiment otherwise is a waste of time and money. I also had a great experience travelling in London at Queens Mary University to meet Prof. Resmini and Dr. Ana Castilla, who coordinate, oversee and taught me a lot about the NANOSTEM project and of course, the NANOSTEM team Federico Traldi and Alena Vdovchenko, who made me feel welcomed and a part of the team.

I hope I will come in terms with the amount of work I have to deliver and withstand the pressure of this fascinating project. I can't wait to meet all the teams and have interesting conversations about the mysteries of physics, chemistry and biology that Blood and Brain Barrier withholds. I will try getting my life in order, adjusting in Birmingham and being as productive as I can be while producing nanoparticles, but mostly I will try seeing this project through till the end!



Eirini



**UNIVERSITY OF
BIRMINGHAM**

The **University of Birmingham (UB)** in the United Kingdom was established by Queen Victoria by Royal Charter in 1900 and was the UK's first civic or 'redbrick' university. It is a public research university, with a student population of 22,440 undergraduates and 12,395 postgraduate students which is the fourth largest in the UK.

Sara at the Stroke unit of CHUC

An article from Sara Bernardo-Castro, ESR.

1st of October I became a new ESR in the NANOSTEM project at Centro Hospital e Universitário de Coimbra (CHUC), in Portugal. My first weeks, moreover, my first month was a “get in touch”, both in the scientific and non scientific ambit, with a lot learning to do. It started by acquiring knowledge about the basis of vascular neurology and everything involving it. Also, I started to learn (and I continue learning) the basis of clinical research, since my background is mainly based on the fundamental research. One of the first things I did, in order to accomplish all of this, was to attend a congress about stroke and its



A view of Coimbra capture by Sara

treatments. To this congress, a lot more followed, allowing me to really dive into de clinical ambit. My PhD courses are also of great help to learn, understand and also practice the main techniques used in clinical research.

Since the first day I stood a foot in the Stroke unit of the neurology area in CHUC, I’ve been taught, among a lot more of other things, how to use different tools like a Doppler machine and how to manage huge patient data bases.

Until now, and due to all the learning I needed, I’ve been working in some really interesting projects, other than my main thesis project, that are helping me develop expertise in imaging and in feeling like an important part of the team here in CHUC. I am now setting everything up, talking to the right people, and figuring out the best way to start with my part of the NANOSTEM project.

The life in Coimbra has been amazing since I got here. Everyone at the hospital has been very nice and helpful with everything, I’ve felt very welcome and thanks to that, changing country didn’t came as such a shock, on the contrary, it has been an incredible experience so far. Other than having amazing food and coffee, Coimbra is a vibrant city, with a strong university tradition, for example, every day you can see students wearing their black cloaks singing in the streets. Also, the city is always full with students from all over the world so you will always find company here and a lot of different things to do around.

Sara



The **Centro Hospitalar e Universitário de Coimbra (CHUC)** is a public healthcare complex located in Coimbra. It is composed by 6 medical institutions: Hospital da Universidade, Hospital Pediátrico de Coimbra (Pediatric Hospital), Hospital dos Covões, Maternidade Dr. Bissaya Barreto (maternity), Maternidade Dr. Daniel de Matos (maternity) and Hospital Sobral Cid. It is the biggest healthcare center in Portugal, with almost 2000 beds and 8500 patients consulted per day.

The NANOSTEM ESRs in London

My first months as a NANISTEM ESR

An article by Alena Vdovchenko, ESR

I started my PhD in October joining the Resmini research group at Queen Mary. It was the first time I'd visited London and this city seemed to me surprisingly big, multinational and warm. Even though for many people London weather is considered rather cold and nasty, I'd say - they must never have lived in St Petersburg. Although it was unusual for me to see green grass instead of snowdrifts on Christmas, I cannot say that I missed them.

The first month in Queen Mary I remember for a lot of introductory and safety lectures, a panicky search for suitable housing and a struggle with opening a UK bank account. Fortunately, all this organisational stuff was successfully completed and I could finally step into the lab. With kind guidance from my experienced colleagues, I synthesised my first nanogel and this interesting and intensive work started. During this time I met a few other ESRs – Federico and Roberta with whom I am lucky to work under the supervision of Marina Resmini, Eirini from Birmingham University and Eleonora from Artois University in France. I'm looking forward to meeting other ESRs and members of the NANOSTEM network – it is already clear to me that we might make a good team together.

Among remarkable events that have happened so far, it is worth noting the trip to Birmingham University, where we had a workshop devoted to Dynamic Light Scattering. Since DLS is a rapid and practical instrument to determine the size distribution of nano-sized materials, it was very useful for us to spend the whole day asking question about sample preparation and obtained results. Besides that, a delicious lunch and a nice tour through the campus seasoned that day with pleasant emotions, thanks to the hospitality of Dr Joseph Jones and Eirini.

Another bonus in living and studying in London – a wide range of conferences and workshops take place here, and we had the good fortune to participate in a few of them. For me quite memorable was the 4th London Polymer Group Symposium in **King's College in London with a great talk by Prof Steve Armes from the University of Sheffield**. I read some of his papers earlier; they always seemed especially interesting to me, so it was twice as pleasant to listen to him speak at the conference. No less interesting was another conference that we attended - it was held in the Royal Society of Chemistry and was dedicated to developing biotherapeutics for neurological disorders. First of all, the architecture of the building is absolutely amazing and this was the first time I had visited the Royal Society of Chemistry. Admittedly, it looks really «Royal».



Photos from the London ESRs visit to the Light Scattering facilities at Birmingham

Of course, this architecture is far from all that I remember from the conference, and I would like to make special mention of the talk given by Dr Dominique Lesuisse. Perhaps her lecture seemed to me most interesting because it was more “chemical” and not “biological”. Nevertheless, I went home with new thoughts and ideas that can be put into practice in the lab, so the conference was certainly useful.

At the moment I look forward to the first decent results and further interesting events, which, I am sure, will be completed during my PhD.

Alena



First experience in London

An article by Federico Traldi, ESR

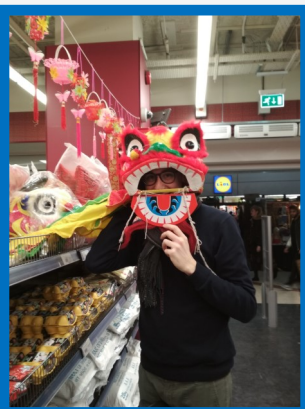
My adventure in NANOSTEM begins at the end of September 2018, when I moved to London and started looking for accommodation. After settling in this beautiful (and expensive) city, I was ready to face the very first challenge that every Italian PhD student must overcome: finding a good Pizzeria! Honestly, I would have been happy just with a decent pizza but, luckily, I quickly found out that many good ones were scattered across the city!

Next task, probably even more difficult, will be to find also a good gelato!



Federico and Alena (right) at the groups Chinese party

These first months here at Queen Mary have been really flying by and a lot of changes happened in my life. I had already experienced the feeling of moving in another European city once, when I moved to Madrid with the Erasmus program. However, Madrid is not even close to being as massive as London and even if I spent some months abroad before, getting to start a new life in another country is still a big step



Federico getting ready for the Chinese party

in a person’s life. London might be a little bit disorienting in the first few weeks. Most of the time, looking for an apartment is not a really exciting experience and this is even more true with such high rent bills as those that I have seen here in London. But when after some weeks you start to get used to the crowd of the central line at 8:00 am, a city full of different cultures and entertainment options opens to your eyes. It still amuses me how many activities one can find in London! Being in part a musician, I am always very interested in the possibility to find my favourite artists close to where I live and having the opportunity to see live performances of emerging bands is invaluable to me! After all, London is indeed the capital of the European music culture!

The first months in Professor Resmini’s group have been thrilling and hectic.

From the very first day I have started getting tons of information and experience with the synthesis of nanogels and all the most common experiments performed in the group. I finally had the chance to learn the details of my project and NANOSTEM as well. Everyone here in the department is very kind and



Queen Mary University of London (QMUL) is one of the UK's leading research-focused higher education institutions. With around 17,840 students, 4,000 staff and an annual turnover of £300m, it is one of the biggest University of London colleges.

helpful, especially my lab mates, who are ready to support and help me in all the new things I am doing. This is one of the most precious things, especially considering the amount of time and efforts required to get used to a completely new environment and working place. I also have met Alena, the second ESR here at QMUL, and from the beginning we started to cooperate and help each other with all the new things we were required to learn. We have also met two other ESR of NANOSTEM: Eirini (University of Birmingham) and Eleonora (University of Artois), who is now doing her secondment here in QMUL. Even if there are still many other mates to meet, I am really glad that I could interact with so many other ESR in this very short amount of time. I reckon that building strong bonds with all the other researchers involved in this project is a crucial point in getting the best out of this experience.

I immensely appreciate the time spent in London so far and, even though I still have plenty of places (and good food) to discover, I am confident that this will be a really precious experience.

Federico



The **NANOSTEM (New Nanomaterials for Neural STEM cells drug delivery)** project brings an intersectorial and holistic approach to the development of advanced nanomaterials as drug delivery systems to target brain delivery. It offers a highly interdisciplinary scientific training in areas ranging from polymer chemistry or materials science to cell biology or clinical sciences, as well as an excellent training programme in complementary skills and translation of research and entrepreneurship. NANOSTEM brings together 7 academic teams, 1 company and 1 hospital supported by 3 associated teams that will train a total of 14 ESRs.

LAST MINUTE

2 ESRs have joined the NANOSTEM team

We have just welcomed two new ESRs to the NANOSTEM team. In February, Matteo Puglisi has started his PhD at HMGU and Roberta Bilardo joined the QMUL team.



ESR6 appointed

The 13th ESR of the NANOSTEM has just been appointed. Angela Barrera from Colombia is joining the NANOSTEM team in April 2019 to start her PhD at CNC. We look forward to welcoming her in the NANOSTEM family.

More about Roberta, Matteo and Angela in the next issue of the NANOSTEM newsletter.

Founded in 1810, the **Karolinska Institute (KI)**, based in Stockholm, is a research-led medical university, recognised as Sweden's best university and one of the largest, most prestigious medical universities in the world. It has a student population of 6,079 undergraduates and 2.136 postgraduate students. It covers areas such as biochemistry, genetics, pharmacology, pathology, anatomy, physiology and medical microbiology, among others.



**Karolinska
Institutet**

Helmholtz Zentrum München (HMGU), based in Neuherberg to the north of Munich, is the German Research Centre for Environmental Health. It investigates chronic diseases like diabetes, cancer, lung diseases, illnesses of the immune system or mechanisms of neurodegenerative diseases. The Helmholtz Zentrum München with around 2300 staff members belongs to the Helmholtz Association, a German research organization with 16 scientific-technical and medical-biological research centres.

HMGU

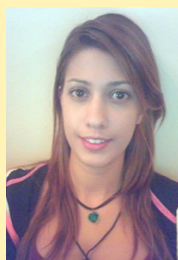
Associated partners are **SANOFI** (France), **HCS-Pharma** (UK) and **Saarland University** (Germany).

All you wanted to know about the NANOSTEM ESRs



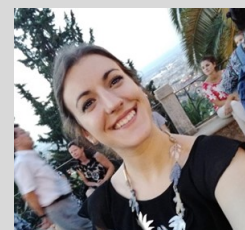
Inês was born in Aveiro (Portugal). In 2014, she obtained a bachelor degree in Biomedical Engineering at Universidade Católica Portuguesa (UCP-Porto) . Afterwards, she enrolled in the MSc in Biomedical Engineering –master’s track in Bionanotechnology and Advanced Manufacturing at University of Twente, The Netherlands. In the meantime she moved for a short internship at Karolinska Institutet, Sweden. In 2017, she graduated with her master thesis work on lipid bilayer biointerfaces to study cell-cell interactions with endothelial cells. In her leisure time, she enjoys meeting with friends, doing sport, reading, going to concerts, travelling and trying new food.

Sara was born in a little village in Spain called Cistierna. After high school graduation she started her studies in Biology at the University of León (Spain) where she started to develop an interest in the basic/fundamental path of research with special interest in physiopathology and neuroscience. After four years, she completed her degree and started her master in neurosciences at University of País Vasco (Bilbao-Spain). During this period she worked in the Neurogenesis Lab at Achucarro Basque Centre for Neuroscience, where she did her master thesis. There, her work was focused in adult neurogénesis in the hippocampus with a special interest in mesial temporal lobe epilepsy. In her free time Sara likes to go out with friends, listen to music, travel and do outdoor sports.



Eirini was born in Crete (Greece) where she did her BSc at the University of Crete in Material Science. Her Bachelor Thesis was on drug delivery systems of supramolecular biohybrids of protein-polymer. She continued her studies in Aristotle University of Thessaloniki where she obtained an MSc degree in Nanoscience and Nanotechnology. Her Master Thesis was conducted in the Foundation for Research and Technology Hellas (FORTH), where she worked on the European NanoREG project concerning nanosafety measurements and characterization of nanoparticles and on synthesis of graphene oxide hydrogels for tissue engineering applications. In October 2018, she started her PhD under the supervision of Professor Rachel O’Reilly and Professor Andrew Dove, where she will develop drug delivery systems for neural stem cell proliferation in the brain as part of the NANOSTEM project. In her free time she enjoys officiating as a football referee, doing sports, travelling around the world and picking up new languages to learn.

Elisa was born in 1995 in Granada, Spain. She started her bachelor degree in 2013, in Biological Sciences, at the University of Granada. After, in 2015, she studied one year at the University of Algarve (Portugal), thanks to Erasmus+ Program. Also, in July 2016, she participated in a research project dealing with Alzheimer’s disease in Newcastle University (UK) during 3 months. When she back to Spain, in April 2017, she joined into the organization committee of an International Conference, by CSIC (The Spanish National Research Council) in Granada. In September 2017, she started a practical training in the biotechnological company Vircell S.L, during 6 months. She completed her master in Translational Research and Personalised Medicine in July 2018, where she also had the opportunity to run her master thesis in the Hospital Virgen de las Nieves. In her free time, she loves do sport, dance, go hiking, to hang out with friends, travel, listen to music and relax sometimes.





Sonia was born in Paris in 1994. After high school graduation, she studied pharmacy for 6 years in Paris Sud University. During her studies, she had a 6 month internship abroad in Basel (Switzerland), in Roche where she had the chance to gain an insight to drug development. During the last year of her study, she focused on innovative drug delivery by following a Master in “Biopharmacie and Pharmacotechnology” at the Institut Galien Paris Sud. She graduated with Master of Pharmacy degree in July 2018 and started her PhD at MJR PharmJet GmbH under the framework of NANOSTEM project directly after graduation. In her free time, Sonia enjoys travelling and planning future trip, going out with friends, going to the gym and watching series.

Patrick was born in Gießen, Germany. After his high school graduation he moved to Frankfurt am Main to study Biophysics at the Goethe University of Frankfurt. For his bachelor thesis he joined Prof. Bredenbeck's Lab at the Department of Biophysics at the University. In his thesis he addressed the biophysical characterization of mutants of the PDZ-domain with spectroscopic methods. For his master thesis he switched to computational biophysics. Therefore, he joined the group of Prof. Hummer at the Max Planck Institute of Biophysics and studied structural and thermodynamic properties of dense protein solutions with computational methods in the framework of statistical physics and scattering theory. In his free time Patrick does sports such as climbing, bouldering, and rowing. He plays the drums and also enjoys listening to music.



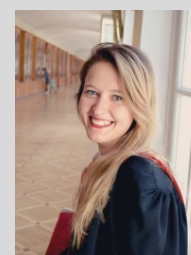
Eleonora was born in Bari (Italy) in 1992. After high school graduation she obtained a bachelor degree in Biotechnology at University of Bari (BA, Italy) in 2015. She then moved to University of Parma (PR, Italy) for a master degree in Biotechnology (regenerative and reparative medicine profile), obtained in 2018. During the last year of her master she moved, with Erasmus Traineeship Project, to University College London (UCL, UK) where she took part in a new born project about the development, characterization and orthotopic implant of a decellularized stomach patch. In her free time she likes to read, hang out with friends, travel and know new places, among other things.

Francesca was born in Cuneo, Italy, in 1994. After high school graduation, she moved to Rome, where she obtained her Medical Engineering bachelor's degree and she first discovered her love for the “lab life” during an internship about bioprinting. Then she enrolled in the Biomedical Engineering master at Politecnico of Turin and she achieved the degree after a thesis about magnetic nanoparticles developed at the Italian Institute of Technology (IIT) in Pontedera (Pisa). Immediately after, she was appointed for an NANOSTEM ESR position in Portugal. In her free time, she loves travelling and discovering new cultures, she enjoys skiing and baking.



Federico was born in Casalmaggiore (Italy) in 1993. After high school graduation, he moved to Modena and enrolled in the Department of Life Sciences. He obtained his master degree in Pharmaceutical Chemistry and Technology in 2017. During his 5th year of master, Federico spent 6 months at the University of San Pablo Ceu (Madrid) as part of the Erasmus program. Here he worked at CEMBIO (*Centro de Metabolomica y Bioanalisis*), where he focussed on the identification of oxidized lipids in blood by LC-MSMS for applications in Metabolomics. In his free time, he likes to play the guitar, play beach volley and hang out with friends.

Alena was born in Tyumen, a city in Siberia (Russia). After high school graduation she moved to St. Petersburg to study chemistry at St. Petersburg State University. She obtained a bachelor degree in 2016 and master degree in 2018, focusing her research on the synthesis and characterisation of nanoparticles based on amphiphilic copolymers. As a member of G-RISC (German-Russian Interdisciplinary Science Center) she spent three months at the Free University of Berlin, working in toxicology and physico-chemical laboratories. In her free time, she likes to play ultimate frisbee and draw.



Forthcoming events

Network events



- © ESR Workshop, 3-4-5 March 2019, London
- © Mid-term check, 1st July 2019, London
- © First Scientific Meeting, 2nd July 2019, London
- © First Summer School, 3th –5th July 2019, Birmingham

Conferences

14th International Conference on materials chemistry

Birmingham, UK

8th to the 11st of July 2019

<http://www.rsc.org/events/detail/31760/14th-international-conference-on-materials-chemistry-mc14>

Abstract submission now open!

Early bird registration deadline: 20th of May 2019

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