



## Interview with **Natalia CHEVTCHIK**

*PhD student at MIRA Institute - UTwente  
The Netherlands*

Natalia comes from the French city Lyon and has some eastern roots: she was born in Belarus (USSR). She moved to France when she was six, because her dad, researcher in microbiology, had chosen to work in Lyon. She made all of her studies in France, then worked for several years as an engineering project leader before deciding to embark on a PhD and thus join the BIOART project. Her host lab is the MIRA Institute at the University of Twente. Let's hear more about Natalia and her PhD.

### **W**elcome in the BIOART project Natalia. Can you tell us more about your training and work experience?

During five years, I studied in the one of the best French Engineering school, INSA Lyon, where I obtained my diploma of Engineering in Materials Science. I focused mostly on polymer science. During my last year, I undertook some extra courses in polymers and biomaterials and graduated with a second diploma: a Master of Research in innovative polymeric materials at Claude Bernard University, Lyon.

Moreover, I am strongly interested in polymers for medical applications. Therefore, during my studies, I performed several internships, both in Academia (University of Southampton, UK – PMMA bone cement) and industry (NORAKER, Lyon - composite materials for bone reconstruction; COVIDIEN France, Sofradim Production, Lyon region – muscular hernia repair).

After my final year internship at COVIDIEN, I was offered a position as Engineering

Project Leader. Since I wanted to work on applied research for Medical Devices, it was a great opportunity for me, and I decided to take the job first and not to do a PhD.

I worked in Covidien for three fulfilling years. And still the thought of the PhD that I did not undertake was visiting me... The spirit of innovation was one of the reasons that pushed me to look for a PhD thesis to broaden my experience and knowledge. Among the other reasons, I was observing the possible career growth that I would have with a PhD within the same company!

### **W**hat is your PhD project about? What objectives do you have to reach?

The BIOART project gathers three different work orientations: bioartificial liver, artificial kidney and bioartificial kidney. I am interested in the bioartificial kidney, which means an artificial hemofiltration device including a biological part.



My (ambitious) aim is to develop a working prototype bioartificial kidney device utilizing human renal epithelial cells for removal of uremic toxins. Of course I am not alone but working closely, among other partners, with two other PhDs from the same work package, a biologist and an immunologist.

### **What is the best thing about taking a PhD? How challenging is it?**

I am in a new cultural, scientific and technical environment.

First, the topic of bioartificial organs and filtrating devices appears as very different from muscular hernia repair. And I should (have to) learn again! It is very important and challenging for me to learn by doing and developing the new approaches and devices. Working in a company is very fulfilling and you can learn on the go; whereas now I have dedicated courses, on membranes for example, and also trainings included in the BIOART project. Of course, learning new technical orientations is always a great challenge.

Secondly, I am in a new cultural environment, in the Netherlands. I have never visited this country before coming for my job interview. And I am undertaking Dutch Language courses! Because of my mixed origins and history, I dare say that I am "linguistically gifted", fluent in French, Russian and English; and now, I progress quite quickly in Dutch, which is my fifth language. I had my A1 level last December, I should obtain the A2 level in some days.

### **How does the experience you got working as engineering project leader feed your behaviour as a PhD student?**

Thanks to my three years of industrial experience, I am always working with having on my mind the idea of the final result. The reproducibility, reliability and validation of the materials, process and methods are also very important to me. Finally, I count on my planning habits to help me for this PhD as well: indeed, I have an ambitious project goal to reach in only three years time! At least those are the differences I have noticed from when I just graduated. And I guess that I have some occupational bias which stuck to me but which I am not aware of!

### **Do you have any plans after completing the PhD?**

At the moment, I am sure that I want to go further in applied research and development for medical devices. I think that I would like to go back to a Medical Company. I do not know yet if I want to stay in the kidney devices, or if I would move towards further medical applications. And of course I prefer to work in an international environment.

### **Secondments are planned for all BIOART's PhD students and PostDocs. You spent two days at Radboud University Nijmegen Medical Centre, one of BIOART's partners, in December 2013. What was the point of the visit and what did you learn there?**

During my project I will work very closely with the PhD fellows from Nijmegen, one biologist and one immunologist; they were having introduction to cell culture with the specific renal cell lines. I met them and enjoyed the training too! But I will go back to Nijmegen in 2014 to see the next steps in culturing cells for our Bioartificial kidney device. And my colleagues will give me return visit to Twente University, to learn about membranes characterization techniques.

More globally, UMC St Radboud is very different from Twente University by its atmosphere, as it is linked to a hospital. You can see patients while crossing corridors, which can be a bit of a surprise of course. And although it is not the main subject here, their canteen proposes really good food that we can enjoy between experiments!

**You also participated in BIOART's meeting and training sessions in January 2014. What is your feedback on that week?**

During this meeting I met all the other PhDs and PostDocs who are working on this joint project. It was therefore the first complete BIOART meeting. We had 3 full days of training together, focused on both technical and soft skill courses.

The technical training was mainly oriented around the kidney: some general membrane courses for the bioartificial kidney, but also natural kidney biology and physiology. I am a polymerist, therefore I really enjoyed the advanced biological courses; they help me to better understand the function of human body, and thus the features that our bioartificial organs need to have.

As to the "soft skill" courses, such as intellectual property, they are always helpful for everyday scientific life!

Finally, it was also very important for me to meet these new colleagues and establish fruitful scientific and human contacts with them. Working jointly is an important advantage particularly in such a multitask and multidisciplinary project!

**Thank you Natalia for answering my questions, and all the best for your PhD!**

**BIOART in brief**

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