

Interview with Denys PAVLENKO*PhD student at MIRA Institute - UTwente*

The Netherlands

Denys is doing his Phd within the framework of the BIOART project. He comes from Ukraine where he got a Bachelor and a Master degree from a top-ranked Ukrainian university, Kyiv-Mohyla academy. He majored in "Membrane and sorption processes and technologies" and was actively involved in membrane-related research at the interface of chemistry and biology. Let's hear how Denys gave an international touch to his studies from very early on, and let's discover what his PhD is about.

**Welcome in the BIOART project Denys. Can you tell us more about your scientific training in a European context?**

The crucial point in choosing my path in science was my decision to get a broad international education.

The perfect fit for my scientific interests was an Erasmus Mundus Master in Membrane Engineering (EM3E), which was launched the year I finished my education in Ukraine.

Along the courses of EM3E I became keen on how membrane technology is developed in European countries. EM3E was a unique chance of working hand in hand with experts in the field of membrane technology from France, the Czech Republic and the Netherlands.

It also helped me develop a wide network of international academic and professional contacts. Moreover, living in different countries was a great learning and adapting experience in itself. The skills that I acquired while living, working and studying in an international environment are of great help for me right now as

the BIOART-Initial Training Network promotes international cooperation among European countries.

What is your PhD project about? What objectives do you have to reach?

The topic of my PhD is "Towards the new generation of dialysis: mixed matrix membranes". Generally speaking I am focused on blood purification of the patients who suffer from renal disease. In case of renal failure, organ replacement therapy still remains the treatment of choice for patients, but due to a lack of donor kidneys most patients must undergo dialysis treatment three times per week for a period of four years on average. Although dialysis treatment helps to remove uremic toxins and excess body fluids, low quality of life and high mortality rate remain the problem.

In my project I will investigate different approaches on how to achieve continuous, prolonged and complete removal of uremic toxins from blood.

The Mixed Matrix Membranes (MMM) concept will be used in order to achieve a highly beneficial combination of filtration and adsorption in one step.

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

Best thing? Well... It has a lot of benefits, but one is especially noticeable for me. A PhD position in a Marie-Curie Action gives you a chance to work with leading experts in the field of artificial organs, so every researcher involved in the project can benefit from unique expertise and take the advantage of the great networking potential of the consortium.

As for the challenges: it is all about time and timing. We have only 3 years for our PhD, so you should be a perfect "time-manager" if you want to reach all the goals you have.

Do you have any plans after completing the PhD?

I really enjoy working in research: it is very challenging and that is what makes it exciting for me. So, after completing my PhD I will search for a Postdoc position in academia or, alternatively, a job position in the R&D department of a leading international company.

Secondments are planned for all BIOART's PhD students and PostDocs. You spent two days at eXcorLab, one of BIOART's partners, in December 2013. What was the point of the visit to the SME and what did you learn there?

Indeed, during the PhD each student has a chance to visit other consortium members to gain new knowledge and/or hands-on experience in the field of artificial organs.

Here, eXcorLab has unique know-how in testing of hemodialysis modules for their biocompatibility. In my project it is essential for all the membranes which will be incorporated into hemodialysis modules not to have any problems with hemocompatibility.

So, I took advantage of the expertise of the eXcorLab and went there to receive training on biocompatibility testing of the membrane modules. Although my visit was only for 2 days, I learned a lot from it: the way membrane biocompatibility is tested as well as how the company and the workflow are organized.

You also participated in BIOART's meeting and training sessions in January 2014. What did you learn there?

Consortium meetings of the BioArt project are usually aimed at providing researchers with a state-of-the-art multidisciplinary training.

The January session was mainly focused on (bio)artificial kidney devices and gave me extended information about the physiological aspect of the kidney problem.

I think it was extremely useful as I do not have background in renal physiology. The lectures from the invited speakers gave me the information I need to fully understand the problem I am working on. Additionally, it was a perfect chance to meet all other PhD/Postdocs of the consortium in a bit informal setting. It is always nice to talk to people who are working on a project related to yours, so you can share your excitement about what you are doing as well as discuss the challenges you are currently facing and the challenges to come.

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

BIOART in brief

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