

## The European Young Researchers' Award 2015 granted to Ms. Heike Blockus

**The International Selection Committee for the European Young Researchers' Award 2015 appointed by the EuroScience Board, has selected Ms. Heike Blockus for the 2015 EYRA.** As in all odd years, this year's EYRA is to recognize PhD candidates (or PhD graduates who defended their PhD in 2015), who have demonstrated an outstanding research performance, leadership and outreach and have incorporated a clear European dimension in their research. Following the committee's proposal, the EuroScience Board has decided to grant the 2015 EYRA to Ms. Blockus.

The International Jury was pleased to receive fifty-six eligible applications, nearly all of them with very strong scientific credentials. In line with the character of the EYRA, they were evaluated on three different criteria: scientific quality, leadership and communication skills and European dimension of the research, the most important being scientific quality. The Committee first selected nine candidates who met those criteria in the best possible fashion. For those candidates, independent reports by experts in the fields of the candidates were obtained; it is on the basis of these reports and of its own evaluations that the jury made its final decision during a virtual meeting late September. The discussion resulted in the unanimous and enthusiastic choice of Ms. Heike Blockus as the 2015 EYRA laureate. She was judged to best fulfill the profile of EYRA as an award for European excellence. As it turns out, the meeting of the jury was on the very next day after Ms. Blockus defended her PhD – Congratulations Dr. Blockus!

Heike Blockus was born in Germany, and studied there through her Bachelor's and Master's degrees at the University of Bonn. She then came to France to complete her doctoral studies at Pierre-et-Marie-Curie University, within the very competitive graduate program "Ecole des Neurosciences de Paris"; her lab was at the Department of Development of the "Institut de la Vision", where she worked under the supervision of Dr. Alain Chédotal.

Heike is a neurobiologist; her work is concerned with the (embryonic) development of nerve fibers—the axons; axons are an essential part of all neurons: as the output station of the neuron, they establish synaptic connections with other neurons or with cells in the periphery, thereby forming the crucial constituent of neural networks. A very important question is the understanding of the mechanisms of axon development: how do newly born neurons integrate into specific synaptic circuits?

In this very active field of neurobiology, called axon guidance, the aim is to understand how axon growth is conditioned by cues in their environment. The importance of such research lies not only in its basic character, but also in the consequences of axon guidance malfunctions in a wide range of neurological disorders, from diseases affecting vision or muscle innervation to neuropsychiatric disorders such as autism, dyslexia or schizophrenia.

Heike has worked specifically on the axon tracts that connect the left and the right side of our brain, known as commissures. In a paper published in *Neuron* as co-first author, she provided, together with her collaborators, a paradigm-shifting hypothesis revolutionizing our understanding of commissural axon targeting in mammals. The work shows that a specific receptor (Robo3) has undergone positive

selection and accelerated evolution in mammals. A mammalian-specific commissural brain circuit not present in other species emerges through a functional switch in the receptor. Such mechanistic diversification through molecular evolution in one specific gene likely underlies fine-tuning of mammalian voluntary movement control. The success of this research necessitated very skillful biochemistry, where Heike took the leading role. Her supervisor Alain Chédotal writes in his support letter about her « gift » for hard experiments yielding a « huge amount of data » which are then carefully analysed.

It is clear that, in spite of her young age (she started her doctoral programme in the fall of 2011, and her research in the summer of 2012), Heike's contribution was essential to completion and publication of this paper evidencing her considerable maturity. Her motivation/effort to collectively disseminate recent advances in her field is also apparent through a book chapter on « Genetics of Neurodevelopmental Diseases » as well as several reviews that she co-authored with her supervisor.

Furthermore, she did not confine herself to performing experiments in the lab. Indeed, she realized a science-art project called EnSynCine, a setup which permits to individually identify a subject's emotional reaction to a movie by a digitalized musical output. This required organising a European team of artists, engineers and neurobiologists from four different countries. The success of this venture lead her to organise an international neuroscience-music conference at IRCAM in Paris in 2014, bringing scientists and artists together with a wider audience.

In the summer of 2014, she participated in a summer school organised by the League of European Research Universities, bringing together 42 PhD students from the 21 LERU universities to discuss "Doing the right things right – research in a complex society". This lead to the creation of an Ethics and Scientific Integrity Charter. Prof. Erika Löfström, who chaired the LERU workshop speaks of an « exceptionally talented, open-minded and committed young scholar », involved in « bridging the gap between hard sciences, arts and humanities, and between scientists and lay persons » — somebody who can inspire younger colleagues and high school students.

In summary, Ms. Blockus, whom her supervisor considers to be the best PhD student he has had in his team in twelve years as a PI, wonderfully combines the qualities sought after in our call for the European Young Researchers Award for young PhD's. As the junior member of the jury, himself a PhD candidate, writes *"In recent times, which are, by opinion of many researchers, the hardest times ever for young researchers, it is very important that we have such motivated young colleagues who are, besides their excellent scientific achievements, ready to dedicate their free time and to work to improve science, society and the quality of science in Europe."* We are sure that Dr. Blockus will go on to an outstanding career as a scientist, and will be a wonderful ambassador for European science.

The International Selection Committee consisted of *Stephane Berghmans, Eugen Gheorghiu, Zaneta Ozolina, Slobodan Radicev, and Chair Martin Andler.*

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