

## International Chairs: the impact of pesticides on the reproduction of mammals studied in Bretagne by Professor Fatima Smagulova

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**In the context of the “International Chairs” program set up by the European University of Brittany (Université Européenne de Bretagne – UEB) with the support of the Région Bretagne and of the ERDF program, the Institute for Research on health, the environment and labor (Institut de recherche en santé, environnement et travail – IRSET) welcomes Fatima Smagulova. The 44 year-old Kazakh researcher aims to understand how pesticides affect the production of gametes and the fertility of mammals.**

Fatima Smagulova will study the impact of chlordecone and atrazine pesticides on mice. Chlordecone is known for its use in banana plantations in the Antilles, where it has an impact on the health of agricultural workers. The use of atrazine is forbidden in France although it persists in the environment where it pollutes groundwater in particular. In other words, these are two hot topics. Aurore Gely-Pernot, who is undertaking her post-doctoral studies under the supervision of Professor Smagulova, praises her extensive experience and her refined knowledge of reproductive biology, as well as her high level of activity. Fatima Smagulova admits she is particularly keen on fundamental research questions which have an impact on the health of men and women.

The biologist from Kazakhstan began her career by studying retroviruses, i.e. infectious agents which can cause cancer. She then worked on the sexual differentiation of mice, followed by work on germ line development (which is also studied at IRSET), with several remarkable results to her credit which were published in the journal *Nature*. Today she is able to synthesize her approaches by studying cell reproduction processes which are disrupted by pollution. She is particularly interested in the crucial point at which cells divide to give birth to male gametes (the sperm) or female (the ovules): the process of meiosis. This process is controlled by the genes, by the hormones and by the interactions between cells, but also by the environment which can influence the way in which genes express themselves: this is the process of epigenetics. The active substances of pesticides with which we come into contact can thus have an unfavorable impact on reproduction and fertility, including over the course of several generations.

For Arnaud Devillez, head of research and innovation at UEB, “International Chairs represents an important framework through which to promote the research activities of UEB abroad. It allows us to build long-term, durable relationships with other universities, with experienced researchers who are invited for a period of three years”. Two other International Chairs have been created to support research on the adaptation of oceans to climate change and on the energy efficiency of radio communication systems.

Each Chair receives 200 000 euros from the Région Bretagne, in the context of the objectives and means contract signed with UEB and the European Regional Development Fund (ERDF). Scientific research in Brittany will thus be able to radiate at an international level, its level of attractiveness will increase and it will reach international standards.

Fatima Smagulova arrived in Brittany in December 2012, settling down after her studies in Russia and various research experiences in France in Montpellier, then in the United States, twice. She was welcomed warmly by Michel Primig, senior researcher at Inserm and in charge of the IRSET team, who recognizes the opportunity which applying for and receiving funding in a period of economic difficulty represents.

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### **About the Université Européenne de Bretagne [www.ueb.eu](http://www.ueb.eu)**

The Université Européenne de Bretagne (UEB) brings together 28 higher education and research establishments (universities, grandes écoles, research bodies, and university teaching hospitals) from all over Bretagne. As the umbrella organisation of higher education and research establishments in Bretagne, the UEB is responsible for the development of joint strategy. This regional hub is also the sponsor of joint projects which are international in scope to increase the international standing of research and to permanently establish Bretagne as a region of knowledge and innovation

In order to achieve this, the UEB has equipped itself with additional tools so as to strengthen the structuring of its networked research departments and to enhance their participation in European and international programmes, such as international chairs and Technosciences, a search engine for scientific and technical expertise in Bretagne's laboratories.

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