

PRESSEINFORMATION

Retired in Germany, successful at Harvard: German immunologist receives Ernst Schering Prize

Klaus Rajewsky receives the Ernst Schering Prize 2008 for his outstanding research in the area of analysis, development, activation and differentiation of B-lymphocytes.

Berlin, 7th of October 2008

Today Professor Klaus Rajewsky from the Immune Disease Institute of Harvard Medical School, Boston, USA receives the Ernst Schering Prize 2008 for his pioneering work in the area of B-cell-biology. With his research he has significantly contributed to our understanding of B-lymphocytes as well as the development of certain lymphatic cancers, the so called lymphomas. Since his discovery that B-cells from germinal centres are the tumour cells of Hodgkin's Lymphoma, Rajewsky and his team have been working on reconstructing the pathogenic course of the disease in a mouse model. Using the technology of conditional gene targeting, which was developed by Rajewsky, they aim to reveal the genetic background of the disease. The 50.000 Euro Ernst Schering Prize will be awarded to the laureate during a ceremony in Berlin.

By awarding the Ernst Schering Prize to Klaus Rajewsky the Schering Foundation wishes to draw attention to the loss of outstanding German researchers due to strict retirement regulations in the German academic system. Rajewsky, who was forced to retire as an active researcher after almost thirty years at the University of Cologne, took up professorship at the University of Harvard, where he still heads a successful and productive research group. "The German retirement regulations would have resulted in shaky financial conditions for my group in Cologne", Rajewsky recalls. "In Harvard they didn't hesitate and offered me a position as a professor straight away. Working here is pretty exhilarating. On every corner you meet some excellent scientist. There are no age limits in America. Should I not receive sufficient financial support in the future, I guess I would have to downsize my lab – but that would be a natural process." Rajewsky nevertheless sees a great chance for the German research system to claim back some of the German scientists currently working as postdocs in the US. It is Rajewsky's belief that if attractive enough offers were made, the brain drain of excellent researchers to the US could be stopped, due to the increasing difficulties in accessing sufficient research funding in the US.

Currently Rajewsky and his team are working in two main areas – lymphoma research and micro-RNA-control. His lymphoma research is focussed on Hodgkin's disease, an area where Rajewsky works closely together with the Berlin cancer researchers Dr. Stephan Mathas and Dr. Martin Janz from the group of Professor Bernd Dörken from the Max-Delbrück-Center for Molecular Medicine (MDC) in Berlin – Buch. "The Berlin co-operation is very promising", says Rajewsky. "Currently we are planning the transfer of mutant mice strains from Harvard to Berlin." In Harvard the scientists use the so called Cre/loxP-system, a technique developed by Rajewsky to construct mutant mice. Using genetically modified embryonic stem cells to generate mouse embryos the Cre/loxP-system then allows for tissue or organ specific knock-outs or knock-ins of certain genes at specific times and under specific metabolic conditions. These genetically modified mice are prime model organisms for studying human diseases and general mammal biology.

His second focus – micro-RNA-control – brings Klaus Rajewsky to Berlin as well. “The co-operation with bioinformatic researchers already started, when my son Nikolaus Rajewsky was still Professor at the Center for Comparative Functional Genomics at the University of New York”, Rajewsky remembers. “He was then offered a position at the Berlin MDC and subsequently took his research and our co-operation with him. Using mathematical models the experts at the MDC make predictions that we then try to verify in the lab at Harvard.” So far more than 600 human microRNAs have been discovered. They are being analysed to understand their significance for the development of certain diseases, i.e. cancer. MicroRNAs are small fractions of RNA (ribonucleic acid), which can significantly disrupt the protein synthesis guided by the cells DNA.

The persona Klaus Rajewsky

Klaus Rajewsky was born in 1936 in Frankfurt/Main, Germany. He studied Medicine and Chemistry in Frankfurt and Munich. He finished his PhD under the supervision of Theodor Wieland and Gerhard Pflieger at the University of Frankfurt/Main. Because of his fascination with antibodies, he subsequently went to Paris. “Back then the new biology was at the Institute Pasteur”, says Rajewsky. “I desperately wanted to do my postdoc in Paris, because they were investigating enzymes using antibodies there.” To Rajewsky antibodies were more than a research object of immunology, they were the connecting element of fundamental questions of life. How does memory work in the wider sense? How do antibodies learn to become more and more affinitive? How does an individual’s specificity of the immune system develop? Or how do we become tolerant? While concentrating on antibodies at first, Rajewsky soon wanted to learn more about the cells that produce them – the so called B-cells.

In 1964 he accepted a position at the Institute of Genetics at the University of Cologne. He was given a lab, a technician and twelve rabbit cages and then left to investigate whatever he found most interesting. So Rajewsky tried to transfer certain research questions that so far had only been studied in bacteria and bacteriophages to mammals. In 1966 he became head of the newly founded department of Immunology at the Institute of Genetics at the University of Cologne. Early in 1969 Rajewsky received a Fellowship of the European Molecular Biology Organization and went to work at the London lab of Nicholas Avriani Mitchison. Together they developed the Antigen-bridge-model, which used to be the new paradigm in immunology for years. “I got the feeling that what I was doing was important”, Rajewsky remembers. Shortly afterwards Rajewsky became Professor for Molecular Genetics.

Using genetics to study the immune system used to be merely a dream at the start of the sixties. It took the better part of thirty years for this dream to come true. “The pinnacle of our work was conditional gene targeting. When we got that to work we felt that we had reached a fundamental turning point and were onto something really important.” Conditional gene targeting in mice made it possible to study the function of specific genes in mammals, something which had previously only been possible to be studied in bacteria. “At the start of my career I was uncertain, whether I would ever make it”, explains Rajewsky. “It was the fun I had with science that brought success in the long run.”

Young scientists today should therefore “Go into science because they are interested. It is important to work with excellent people and one shouldn’t waste too many thoughts on the immediate success of ones work or whether ones job is safe. In my experience you will find the right place, the right people and everything else too, if the idea is good.”

The Ernst Schering Foundation

The Ernst Schering Foundation was founded in 2002 by the Schering AG. It supports science and culture with a focus on the natural sciences and contemporary art. These aims are pursued through specific support programs for young scientists and artists as well as awards for outstanding achievements in these fields. A special focus is on projects based in both areas, especially on the interface of science and the arts. Furthermore the foundation conducts scientific workshops, supports scientific and cultural education of children and teenagers, and promotes the dialogue between science and society. The foundation has an endowment of 35 million euros.

The Ernst Schering Prize is one of the most prestigious German sciences prizes. It was established by the Ernst Schering Research Foundation in 1991 and is awarded annually. Since 2003, the prize is awarded by the Ernst Schering Foundation. It is awarded on an international level for particularly outstanding work in the field of medicine and basic biological and chemical research.

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As part of the award ceremony Professor Rajewsky will give a lecture on the 8th of October at 10.00 am to high school students of the Humboldt Gymnasium, Berlin Tegel. Further information can be obtained from Dr. Harald Paland, Ph.: +49 30 433 70 08.

This is followed by an open lecture at 4 pm on „MicroRNA control in lymphocytes“ at the Kaiserin-Friedrich-Haus, Robert-Koch-Platz 7, 10115 Berlin, Ph.: +49 30 3088 8924. Contact Andrea Lehmann, info@scheringstiftung.de, Ph.: +49 30 2062 2960.