



Press Release

Freiburg Scientist is awarded the Paul Ehrlich and Ludwig Darmstaedter Prize

Immunologist Michael Reth is honoured for outstanding biomedical research

Prof. Dr. **Michael Reth** has won the Paul Ehrlich and Ludwig Darmstaedter Prize, awarded by the Paul Ehrlich Foundation, for his research on the immune system. For the first time since 1996, the prize goes to a scientist working in Germany. Reth is Professor for Molecular Immunology at the Institute of Biology III of the University of Freiburg and Scientific Director of the Cluster of Excellence BIOS, Centre for Biological Signalling Studies. He is also head of the department for Molecular Immunology at the Max Planck Institute of Immunobiology and Epigenetics (MPI-IE). The prize is endowed with 100,000 Euros and is one of the highest honours in science in Germany. By awarding the prize to Reth, the Foundation has chosen to honour a scientist who, like Nobel laureate Paul Ehrlich, decodes how immunity operates at a molecular level, in order to find new therapies for cancer and infectious diseases.

“This award is a great honour for me, because I deeply admire Paul Ehrlich’s work in immunology,” Reth said. “He was one of the first scientists to consider the molecular level in this field.” Following Ehrlich’s scientific tradition, Reth chose to focus his research on how the human body recognises foreign substances.

“Due to the success of vaccinations, which was one of the greatest achievements in medicine, immunology has been an applied science from

Albert-Ludwigs-Universität
Freiburg

Rektorat

Stabsstelle Öffentlichkeitsarbeit
und Beziehungsmanagement

Abt. Presse- und
Öffentlichkeitsarbeit

Fahnenbergplatz
79085 Freiburg

Tel. 0761 / 203 - 4302
Fax 0761 / 203 - 4278

info@pr.uni-freiburg.de
www.pr.uni-freiburg.de

Ansprechpartner:
Rudolf-Werner Dreier (Leiter)
Nicolas Scherger
Rimma Gerenstein
Mathilde Bessert-Nettelbeck
Dr. Anja Biehler
Melanie Hübner
Katrin Albaum

Freiburg, 14.03.2014

the beginning. However, we still do not fully understand the processes that underlie immunisation,” Reth remarks. That is why his research revolves around the B cell component of the immune system. When activated, these blood cells produce antibodies to fight off infection. Reth investigates the structure and organisation of the B cell antigen receptors. These molecules on the surface of B cells recognise foreign substances, so-called antigens, and trigger the activation of the immune system. Reth was able to describe the basic structure of the antigen receptor of B cells for the first time in 1989. Together with his research group, he developed a new model for the activation of this receptor and recently provided further experimental evidence for this model.

Furthermore Reth has shown that receptors on the plasma membrane have a more complex structure than previously assumed. They are not freely diffusing on the cell surface but are organized in 50 to 150 nanometre sized membrane patches also called protein islands. The detailed analysis of the organization of receptors on the cellular membrane is a focus of research at the BIOSS Centre for Biological Signalling Studies, the cluster of excellence directed by Reth since 2007.

“The Paul Ehrlich Prize recognizes Michael Reth, the director of our Cluster of Excellence BIOSS Centre for Biological Signalling Studies, for his personal scientific achievement. His success resonates throughout the entire university and encourages our junior researchers to tread new paths and pursue a scientific career,” says Prof. Dr. **Hans-Jochen Schiewer**, Rector of the University of Freiburg. Located in the Signalhaus in Freiburg, BIOSS brings together engineers and biologists to investigate signalling processes using methods of synthetic biology. In the spirit of BIOSS’s motto “from analysis to synthesis”, researchers re-construct signalling cascades or develop new kinds of systems altogether – for example, hydrogels that release medication in a temporally controlled way, or signalling proteins that can be switched on and off with light.

Caption:

Michael Reth chose to focus his research on how the human body recognises foreign substances. Photo: BIOSS

The University of Freiburg achieves top positions in all university rankings. Its research, teaching, and continuing education have received prestigious awards in nationwide competitions. Over 24,000 students from 100 nations are enrolled in 188 degree programs. Around 5,000 teachers and administrative employees put in their effort every day – and experience that family friendliness, equal opportunity, and environmental protection are more than just empty phrases here.

About Michael Reth:

In 1989 Michael Reth joined Nobel laureate George Köhler's laboratory at the MPI and later on was appointed Chair of Molecular Immunology at the University of Freiburg. He was awarded the Gottfried Wilhelm Leibniz Prize of the German Research Foundation in 1995 and the EFIS-Schering-Plough European Immunology Prize in 2009.

In 2012, Michael Reth was awarded an advanced grant by the European Research Council (ERC). [More information here](#)

Michael Reth's CV can also be found on [the website of BIOSS Centre for Biological Signalling Studies](#).

About the Prize:

Press release, videos and pictures of the award ceremony are available on the website of the Paul Ehrlich Foundation at: www.paul-ehrlich-stiftung.de

For more about Michael Reths research, or to find infographics and videos, please visit our Surprising Science website.

www.pr.uni-freiburg.de/go/zellmembran

Contact:

Prof. Dr. Michael Reth
BIOSS Centre for Biological Signalling Studies
University of Freiburg
Tel: +49 761/203-97374
E-mail: michael.reth@bioess.uni-freiburg.de

Mathilde Bessert-Nettelbeck
Head of Public Relations
BIOSS Centre for Biological Signalling Studies
University of Freiburg
Tel: +49 761/203-97662
E-mail: mathilde.bessert-nettelbeck@bioess.uni-freiburg.de

The University of Freiburg achieves top positions in all university rankings. Its research, teaching, and continuing education have received prestigious awards in nationwide competitions. Over 24,000 students from 100 nations are enrolled in 188 degree programs. Around 5,000 teachers and administrative employees put in their effort every day – and experience that family friendliness, equal opportunity, and environmental protection are more than just empty phrases here.