



[Home](#)
[Deutsch](#)
[Site map](#)
[Glossary](#)
[Contact](#)
[Newsletter](#)

Search

PowerSearch

Glossary on

LIFE SCIENCE NEWS

Announcements

Events

Topic of the month

Industry

Science

News and Views

TOPICS IN FOCUS

Biopolymers

Biomedical technology

OUR PROFILE

BIOPRO

Biotech interdisciplinary

SYNPRO

Summer course

Downloads

OUR LOCATION

Baden-Württemberg

Funding programmes

Landesstiftung

DATABASE

Research institutes

Companies

BIOREGIONS

BioLAGO

Rhein-Neckar-Dreieck

Freiburg

STERN

Ulm

Funding with a systematic approach

On Friday 16th November, 2007, Dr. Niels Grabe received the MTZ-BIOQUANT Award for Systems Biology. Working in close cooperation with the Imaging and Analysis Centre of the BIOQUANT research network, the scientist is using systems biological approaches to simulate tissue differentiation and growth. Grabe works at the Institute for Medical Biometry and Informatics at the Medical Faculty of Heidelberg University.

The MTZ Foundation supports science and research dealing with human medicine. Of particular importance is the interdisciplinary combination of classical research approaches with systems biology. "It is impossible to understand biological systems with classical methods alone," said Thomas Zimmermann speaking at the prize award ceremony in Heidelberg on 16th November where the first MTZ-BIOQUANT Award for Systems Biology was awarded.

The goal of the BIOQUANT research network is to understand complex life functions using systems biological approaches. The MTZ Foundation and BIOQUANT make excellent partners in this endeavour. Systems biology focuses on acquiring and understanding the complex general context of life and the dynamic processes in cells and organs, for which researchers are using data from genomics and proteomics. "With systems biology, the field of mathematics enters the realm of biology," said Prof. Dr. Jürgen Wolfrum who is the founding director of BIOQUANT. Mathematics enables scientists to create complex models of the processes that take place in cells, tissues and organisms from experimental data, and to develop them further.



At the awarding of the 1st MTZ-BIOQUANT Award (Prof. Dr. Jürgen Wolfrum (BIOQUANT founding director), Monika Zimmermann, prizewinner Dr. Niels Grabe, Thomas Zimmermann, Prof. Dr. Hans Georg Kräusslich (BIOQUANT Directors)) (Photo: BIOPRO)

Simulation and experimentation as a dynamic pair

This year's MTZ-BIOQUANT Award winner, Dr. Niels Grabe, received a prize of €2500 for his work on the "Development of an approach for medical systems biology through analysis and modeling of epithelial tissue homeostasis". Grabe did his research at the Institute for Medical Biometry and Informatics, which is part of the Medical Faculty of Heidelberg University. His research was also partially carried out at the TIGA (Tissue and Imaging Analysis Centre) at BIOQUANT. Using human skin as a model, Grabe investigated how tissue growth and regeneration can be simulated in silico (i.e. using computers). He considered it vital to include cell movement in his simulations, a factor that is often neglected in biological experiments. The model is based on virtual stem cells that mature as they grow.

However, Grabe did not just limit his research to simulations. Working at the TIGA Centre, he also gathered information about the expression pattern of proteins using an automated tissue scanner. Visualisation of the tissue slices using quantitative high-throughput image analysis is the basis for simulating tissue growth. In addition, the integration of model and analysis creates the opportunity to understand tissue differentiation and homeostasis in all its complexity. The system has already been used to gain a detailed understanding of psoriasis.

Systematic funding of medically oriented research

The MTZ Foundation also focuses on bioethical aspects of cell and genome research. The MTZ Foundation and the University of Freiburg give a promotional prize to Freiburg scientists who have come up with an outstanding scientific thesis. This year's winner, Dr. Oliver Müller, has been looking into the topic "Humans and their stand on their own nature". Müller is a member of a junior research group addressing "the relevance of human nature as orientation standard for the application of biomedical ethics questions".



Another important MTZ award is the MTZ Foundation Award which is given to outstanding PhD theses in the field of medically-oriented systems biology. The prize is awarded jointly with the German Federal Ministry of Education and Research (BMBF) and the Project Management Organisation Jülich. "Our funding itself follows a system," said Thomas Zimmermann explaining that "all MTZ Awards follow the logical sequence of "in vivo, in vitro and in silico".

ap - 20.11.2007

© BIOPRO Baden-Württemberg GmbH

MTZ-Stiftung

[More information](#)

[Send page](#)



[Print version](#)



