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Please contact us if you are interested in world-class research, in studying human medicine, dentistry, biology, pharmacy or bioinformatics in Germany or if you would like to do your PhD-studies in one of these subjects.



MARCH 2008

About KoMM

The Competence Center Molecular Medicine is an initiative of the Saarland University funded by the Ministry of Education, Culture and Science. It provides an interface between biomedical research at the university, economy and publicity and combines about 50 first-class scientists who focus on important aspects of function and regulation of membrane proteins.

Membrane proteins play a crucial role in cellular and physiological processes which affect basic life functions. They are essential mediators of cargo and information transfer between cells, between intracellular compartments and between organ systems. Functionally intact membrane proteins are vital to health and specific defects therein are associated with many known human diseases. Membrane proteins are the targets of a large number of pharmacologically and toxicologically active substances and are responsible, in part, for their uptake, metabolism, and clearance. The overall goal of the KoMM members is to identify key components of membrane-derived signal transduction pathways, to investigate their functions in the laboratory and, finally, to apply this knowledge to patient care.

Research of the individual fields is carried out partially within DFG funded, interdisciplinary research groups, in which different expertises are bundled and which are described below. Each of these programs offers vacancies for highly qualified PhD students from all over the world. They do not only offer modern facilities for research but also a demanding and performance-oriented curriculum that covers various specialties in the field of molecular research.

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WEBLINKS

SFB 530

http://www.med-rz.uni-sb.de/med_fak/sfb530/index.html

KFO 129

http://www.uniklinikum-saarland.de/en/einrichtungen/kliniken_institute/gastroenterologie/forschung_lehre/forschung/klinische_forschergruppe/

KFO 196

http://www.uni-saarland.de/fak2/komm/organisations_en.html

GRK 845

<http://www.uni-kl.de/membrantransport/>

GRK 1326

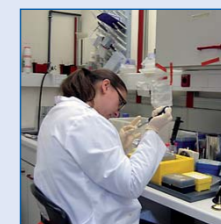
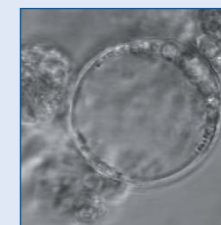
<http://www.uniklinikum-saarland.de/en/forschung/gk-calcium>

FOR 967

http://www.uni-saarland.de/fak2/komm/organisations_en.html



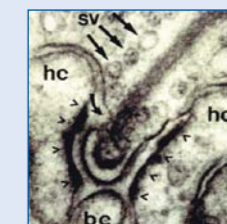
COMPETENCE CENTER MOLECULAR MEDICINE



Association of Research Cooperations

Saarland University Saarbrücken

Saarland University Hospital and Faculty of Medicine Homburg



www.uni-saarland.de/fak2/komm/start_en.html

KFO 129

Mechanisms of resistance development and optimization of antiviral strategies in hepatitis C virus infection using integrative models in biomathematics and bioinformatics

Coordinator/Leadership: Prof. Dr. Stefan Zeuzem, University of Frankfurt a. M. and Prof. Dr. Eva Herrmann, Saarland University

This clinical research unit comprises research projects from different disciplines including clinical medicine, biomathematics, bioinformatics, structural biology, immunology, virology, and pharmaceutical chemistry to characterize resistance to hepatitis C therapy and to develop new treatments approaches. Inflammation of the liver caused by chronic infection with the hepatitis C virus (HCV) affects more than 170 patients throughout the world including 500.000- 800.000 patients in Germany. After many years of infection chronic hepatitis C can proceed to severe liver diseases. Unfortunately, sustained virologic response rates to currently available anti-HCV treatments are only about 50 to 60 %. Many new drugs, especially inhibitors of the HCV NS3 serine protease and the RNA-dependent RNA polymerase, are currently under preclinical and early clinical evaluation. Therefore models for predicting treatment response are highly desirable. Additionally, efficient and reliable prediction algorithms of treatment response early after initiation of therapy may lead to individualized optimization of treatment schedules in clinical practice. A solution of these challenges may be derived from viral kinetics and genetics. In addition to the research projects, the clinical research unit provides interdisciplinary training structures and joint support of young researchers by clinicians and basic researchers.



Spatio-temporal interactions of intracellular signaling molecules

Coordinator: Prof. Dr. Veit Flockerzi, Saarland University

The Collaborative Research Center SFB 530 was founded in 1999 at the Saarland University. It covers two project areas as well as a service range. The first project area of six working groups (pharmacology, physiology, anatomy and cell biology) of the Medical Faculty in Homburg as well as the Department of Zoology at the University Kaiserslautern deals with "plasma membrane-obtained signals". The second project area consists of eight working groups (medical biochemistry and molecular biology, anatomy and cell biology, physiology, biophysics and structure biology) at the Medical Faculty in Homburg. It concentrates on the communication between cell compartments. The service range includes a working group from the Institute for medical biochemistry and molecular biology and the management of the Collaborative Research Center.



Calcium-Signaling and Cellular Nanodomains

Coordinator: Prof. Dr. Dieter Bruns, Saarland University

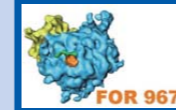
Central to this program (founded in April 2006 at the Saarland University) are functional analyses of Ca^{2+} -transporting protein structures and intracellular membrane transport as well as Ca^{2+} -regulated processes in the context of intra- and intercellular communication. In this way, the program focuses on one of the most attractive research fields in life sciences. The participating groups provide excellent scientific expertise in the spatial and temporal analyses of Ca^{2+} -signals. This research program is accompanied by a demanding and performance-oriented curriculum that covers various specialties in the field of molecular research. Current topics in cellular and molecular biology, biochemistry and neuroscience as well as state-of-the art techniques are taught by distinguished scientists in a comprehensive lecture series and candidates will receive intense training in concepts of intra- and intercellular communication.

KFO 196

Signal transduction in adaptive and mal-adaptive cardiac remodeling-processes

Coordinator: Prof. Dr. Michael Böhm, Saarl. University

The Clinical Research Unit KFO 196 at the University Hospital in Homburg was established in July 2007. It consists of 6 research projects of the Medical Faculty in Homburg and one central project in cooperation with the medical center for internal medicine III, the Institute for molecular cell biology and the Institute for pharmacology and toxicology. Chronic heart failure is an ever increasing problem and accounts for a high mortality rate in industrial counties. The mechanisms of this disease are not yet clarified sufficiently and possibilities for therapies are limited. The new KFO 196 analyses the molecular settings of healthy and abnormal myocardial alterations.



Functional and mechanistic diversity of ligands of the ribosomal tunnel exit

Coordinator: Prof. Dr. Richard Zimmermann, Saarland University

Since January 2008 the DFG supports this new Research Unit 967 at the Faculty of Medicine in Homburg. It represents a supraregional network in the field of biochemistry including 10 projects at the universities in Freiburg, Heidelberg, Homburg, Kaiserslautern, Munich, Osnabrück and at the Max-Planck-Institute for Biochemistry in Martinsried. After their synthesis at the ribosome, proteins have to be folded and transported to their site of action in order to carry out their specific functions. In all organisms these processes are assured by certain ribosome-associated factors. Incorrect folded proteins account for numerous human diseases, e.g. polycystic liver disease or the Wolf-Hirschhorn-disease. The new Research Unit will analyze the effectiveness of molecular chaperones and components for protein transport using state-of-the-art and innovative methods in order to clarify the basic principles of protein folding and protein transport.



Molecular, physiological and pharmacological analysis of cellular membrane transport

Coordinator: Prof. Dr. Richard Zimmermann, Saarland University
Prof. Dr. Ekkehard Neuhaus, University of Kaiserslautern

The GRK 845 was founded in April 2003 as a collaboration project of the University of Kaiserslautern and the Saarland University with its Medical Faculty located in Homburg. The group intends to examine the involvement of membrane proteins in physiological processes of various organisms, their regulation and interaction on a cellular level for better understanding of the structure, maturing and assembling of functional complexes. The participation of experienced scientists of the research areas physiology, virology, pharmacology, anatomy, cell biology, biophysics, human genetics, medical biochemistry and molecular biology ensures a uniquely broad molecular, physiological and pharmacological examination of the hydrophobic membrane proteins, which are experimentally often difficult to access. The integrated educational program for graduate students provides the mediation of concepts and theories but also practical components.

You will find the individual weblinks on the other page.

