In 2000, the Georg August University of Göttingen, together with the Max Planck Society for the Advancement of Science established two international MSc/PhD programs, namely *Neurosciences* and *Molecular Biology*.

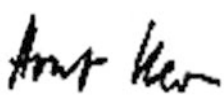
Both programs met with immediate success: Some 500 students from more than 70 countries applied for the 40 study places available.

These intensive research oriented programs are taught by internationally renowned scientists from five Göttingen University faculties, from the Max Planck Institutes for Biophysical Chemistry and for Experimental Medicine as well as from the German Primate Centre. International guest lecturers also participate in the programs. The Max Planck Society contributes through its newly established International Max Planck Research School.

Both programs keep close contacts with the relevant industries in order to also meet market requirements thus enhancing the chances for successful graduates to find attractive professional careers.

I would very much like to thank all scientific bodies and institutions for their keen support in establishing our new international programs and, last but not least, the German Academic Exchange Service (DAAD) as well as the Lower Saxony Ministry of Science and Culture.

The Georg August University of Göttingen is proud of its long international experience and very much looks forward to offering two attractive and innovative programs within the setting of a lively urban cultural and social background, a prerequisite for creative teaching and research.



Prof. Dr. Horst Kern
(President of the Georg August University, Göttingen)

Letter from the Max Planck Society

The mission of the Max Planck Society is to conduct basic research in science and humanities at the highest level. More than 80 Max Planck Institutes are located on scientific campuses across Germany, most of them close to Universities.

Scientific ties between Max Planck Institutes and Universities are traditionally strong. In 1998, during the 50th year celebration of the Max Planck Society 1998 in Göttingen, the Max Planck Society - together with the Hochschulrektorenkonferenz - launched the International Max Planck Research Schools as a new joint program to further intensify cooperation.

The goals of the International Max Planck Research Schools are

- to attract excellent students from all around the world to intense Ph.D. training programs in Germany, preparing them for careers in science,
- to integrate Max Planck scientists in top-level scientific training of junior scientists,
- to intensify the ties to the Universities owing to the participation of internationally renowned Max Planck scientists in joint teaching activities, and
- to strengthen international relationships by providing individual support to each student and by exposing foreign students to German culture and German language.

By now, 27 International Max Planck Research Schools have been established involving 32 Max Planck Institutes and 24 German universities. More than 400 (mostly PhD-) students from 58 countries are presently enrolled.

The success of the Göttingen International Max Planck Research Schools in Molecular Biology and Neurosciences is evident from the high quality of the students and from the hundreds of applications the programs receive each year. The Schools also re-shaped the local scientific community, strengthened the ties between the participating institutions, and initiated new scientific collaborations that augment the international reputation of Göttingen as a center for scientific excellence. We hope that in the years to come the students of the International Max Planck Research Schools will be successful in their professional careers. We also hope that they will remember their training period in Göttingen as an exciting and stimulating phase of their lives.

Peter Gruss
President
Max Planck Society
for the Advancement
of Science

Reinhard Jahn
Coordinator, IMPRS Göttingen
Director, MPI for Biophysical
Chemistry

Introduction

The Yearbook 2002/2003 is intended to inform about the international MSc/PhD Program *Molecular Biology* in Göttingen, Germany which started in October 2000 for the first time. Students, faculty, program committee and coordination staff are introduced on the following pages together with general information regarding the program.

The MSc/PhD Program *Molecular Biology* is carried out by the Georg August University of Göttingen, the Max Planck Institute for Biophysical Chemistry, and the Max Planck Institute for Experimental Medicine. The participating departments and research groups of the University of Göttingen are joined together in the Göttingen Center for Molecular Biosciences (GZMB). The contribution to the program by the Max Planck Institutes is through the newly established International Max Planck Research Schools. The entire program is based on the close cooperation between the above-mentioned partner institutions.

Funding of the Program

DAAD

German Academic Exchange Service (DAAD),
Bonn, Germany
http://www.daad.de

Max Planck Society for the Advancement
of Science, Munich, Germany
http://www.mpg.de

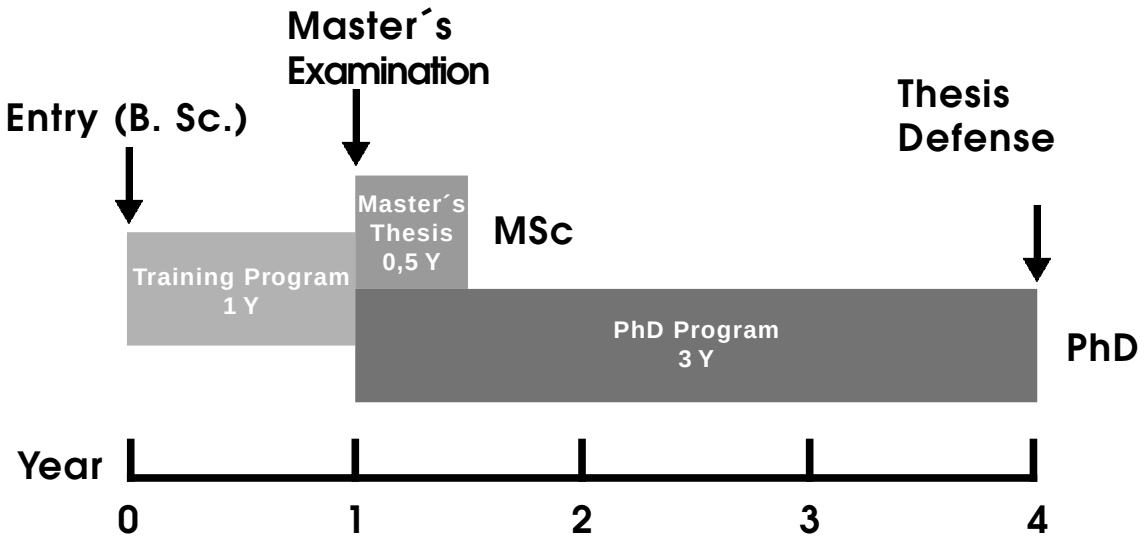
Niedersächsisches Ministerium für Wissenschaft und Kultur

Ministry of Lower Saxony for Science
and Culture, Hannover, Germany
http://www.mwk.niedersachsen.de/home/

Overview

The Georg August University of Göttingen, the Max Planck Institute for Biophysical Chemistry, and the Max Planck Institute for Experimental Medicine offer an international graduate and postgraduate program in molecular biology leading to a Master of Science (MSc) degree and a PhD / Dr. rer. nat. degree, respectively. The intensive, multidisciplinary and research-oriented program is taught in English by internationally renowned scientists. To assure individual training on a high standard, the number of participants is limited to twenty students per year. Selection and admission of highly qualified students involves several steps, including a written subject test and personal interviews with each candidate.

All successful applicants holding a Bachelor's degree (or equivalent) are guided through one year of intensive course work. The typical semester structure at German universities has been replaced by a modular training program during the first year, covering course work equivalent to three semesters. Good or excellent results after one year qualify for direct admission to a three-year PhD project in one of the participating research groups without being required to complete a Master's thesis. Alternatively, students may conclude the program with a six-month Master's thesis project, leading to a Master of Science (MSc) degree.



The intensive, research oriented MSc/PhD program is taught by internationally renowned scientists. To assure individual training on a high standard, the number of participants in the program is limited to 20 students per year. A special emphasis is put on individual training in small groups. All courses are taught in English.

The following companies contributed stipends:

Bayer AG, Leverkusen, Germany
http://www.bayer.com/en/index.php

Carl Zeiss Lichtmikroskopie, Göttingen, Germany
http://www.zeiss.de

Degussa AG, Düsseldorf, Germany
http://www.degussa.com

DeveloGen AG, Göttingen, Germany
http://www.develogen.com

Hellma GmbH & Co. KG, Müllheim / Baden, Germany
http://www.hellma-worldwide.com

KWS Saat AG, Einbeck, Germany
http://www.kws.com

Luigs & Neumann, Ratingen, Germany
http://www.luigs-neumann.com

Sartorius AG, Göttingen, Germany
http://www.sartorius.com

Solvay Pharmaceuticals, Hannover, Germany
http://www.solvay.com

Springer Verlag, Heidelberg, Germany
http://www.springer.de

Stifterverband für die Deutsche Wissenschaft, Essen, Germany
http://www.stifterverband.org

Intensive Training Program (First Year)

Throughout the first year, current topics in molecular biology are covered by

- lectures
- tutorials
- methods courses
- laboratory rotations
- seminars

Lectures and Tutorials

A comprehensive lecture series is organized into a sequence of 7-11 week units. The following topics are taught on an advanced level throughout the first year (36 weeks, 4 hours per week):

A. Biochemistry and Structural Biology

- The Prokaryotic and Eukaryotic Cell
- Thermodynamics, Kinetics, Enzyme Catalysis, Regulation
- Protein Structure, Crystallography, NMR, Structure Validation
- Biophysics of Membranes
- DNA and Chromatin Structure
- Energy Metabolism
- Photosynthesis

B. Molecular Genetics

- DNA Replication and Repair
- Transcription
- RNA-processing and Translation
- Signal Transduction
- Genomics, Bioinformatics

C. Functional Organization of the Cell

- Membranes: Structure and Transport
- Protein Sorting, Vesicular Transport, Organelle Biogenesis
- Cytoskeleton
- Cell Adhesion
- Cell Cycle, Cancer, Apoptosis
- Infectious Diseases

D. Model Systems of Molecular Biology/Biotechnology

- Bacteria and *Archaea*
- Biotechnology
- Fungi
- *Arabidopsis*
- *Drosophila*
- *Xenopus*, Zebrafish
- Chicken, Mouse
- Human Genetics
- Immunology
- Nervous System

Each lecture is accompanied by a tutorial session, where students meet with a tutor in small groups. Tutorials involve exercises, review of lecture material, and discussion of related topics.

During the first months of the training program, students participate in a series of methods courses to introduce them to principles and practical aspects of basic scientific techniques and the handling of model organisms. The methods courses are organized in the following teaching units:

A. Nucleic Acids

- Purification and electrophoresis of nucleic acids
- Polymerase chain reaction I
- cDNA-synthesis, cloning
- DNA sequence analysis and bioinformatics
- Chemical and enzymatic analysis of RNA structure
- Spectroscopic characterization of nucleic acids

B. Proteins

- Protein preparation and characterization by gel electrophoresis and Western blot
- Chromatographic protein separation
- NMR spectroscopy
- Structural analysis of proteins and protein structure validation
- Proteomics
- *In vivo* and *in vitro* expression of recombinant proteins
- Analysis of protein-protein and nucleic acid-protein interaction

C. Cell Biology and Genetics

- Light microscopy
- Electron microscopy
- Biochemical cell fractionation
- Cell culture
- Expression analysis / whole mount *in situ* hybridisation / detection of reporter activity

Laboratory Rotations

Starting in January, every student carries out three independent research projects (laboratory rotations) in participating laboratories. Each project is individually supervised and involves seven weeks of experimental work, followed by one week for data analysis and presentation. For each project, a report must be completed which has the format of a scientific research publication. The laboratory rotations must cover three different subjects.

Seminars

Seminars start in March. The class meets weekly for two hours to discuss two student presentations. The presentations are research reports based on work from the laboratory rotations.

Examinations

After the first year of intensive training, all students take one written and two oral Master's examinations. The Master's examinations explore the students' theoretical background in topics covered by lectures and tutorials. Each oral examination investigates the qualification in two of the following disciplines:

- biochemistry
- cell biology
- developmental biology
- developmental physiology
- genetics
- microbiology
- molecular pharmacology
- neurobiology
- structural biology

PhD Program

Students who have passed the Master's examinations with good or excellent results qualify for direct admission to a three-year doctoral project in one of the participating research groups without being required to complete a Master's thesis first.

The PhD training program emphasizes independent research of the students. PhD students select three faculty members as their advisory committee which closely monitor progress and advise students in their doctoral project. Laboratory work is accompanied by seminars, training of scientific writing and oral presentation skills, elective courses, and participation in international conferences or workshops.

At the end of the PhD training program, a doctoral thesis is submitted either in the traditional format, or as a collection of scientific publications in internationally recognized journals along with a general introduction and a discussion of the results. The degree PhD or, alternatively, Dr. rer. nat. will be awarded after

Master's Program

After the first year of intensive training, students may conclude the program with a six-month thesis project, leading to a Master of Science degree. The thesis project involves experimental work under the supervision of faculty member of the Molecular Biology Program.

Application, Selection and Admission 2002

Applicants must hold a Bachelor's degree or equivalent in biology, biochemistry, chemistry, medicine, agriculture, or related fields. They are required to document their proficiency in English and should not be older than 27 years.

In the year 2002, the coordination office received 408 applications from 56 countries.

Continent	Applications	Admissions	(% of Applications)
Europe (total)	**76**	**11**	**(14.5)**
Germany	25	7	(28.0)
other West Europe	8	1	(12.5)
East Europe	43	3	(7.0)
America (total)	**17**	**2**	**(11.8)**
North America	6	0	(-)
Central/South America	11	2	(18.2)
Africa(total)	**75**	**0**	**(-)**
North Africa	5	0	(-)
Central/South Africa	70	0	(-)
Asia (total)	**240**	**5**	**(2.1)**
Near East	20	1	(5)
Central Asia/ Far East	220	4	(1.8)

Orientation, Language Courses, Social Activities

A four-week orientation prior to the program provides assistance and advice for managing day-to-day life, including arrangements for bank account, health insurance, residence permit, housing, and enrollment. Students have the opportunity to meet faculty members and visit laboratories of the participating institutions. In addition, the orientation program informs students about computing and library facilities, the city and university of Göttingen, sports facilities, and cultural events.

An intensive basic language course in German is offered in cooperation with *Lektorat Deutsch als Fremdsprache* to facilitate the start in Göttingen. Additional language courses and social activities accompany the program.

Advertisement

Students 2002/2003

Name		Highest Degree	Home Country
Zeynep	Arziman	B.Sc. Molecular Biology & Genetics	Turkey
Kerstin	Bartscherer	B.Sc. (hons) Biotechnology	Germany
Partha Pratim	Das	M.Sc. Molecular Biology	India
Roland	Graf	Vordiplom Biology	Germany
Shirui	Hou	B.Sc. Biology	P. R. China
Namita	Kanwar	B.Sc. (hons) Biomedical Sciences	India
Pia	Kaplanek	Vordiplom Biochemistry	Germany
Elena	Kardash	B.Sc. Life Sciences	Israel
Ulf	Klein	Vordiplom Biology	Germany
Rebecca	Mathew	M.Sc. Horticulture & Plant Physiology	India
Patrick	Müller	Vordiplom Biology	Germany
Krystyna	Nahlik	M.Sc. Molecular Biology	Poland
Sven	Pilarski	Vordiplom Biology	Germany
Fernando	Rodríguez	B.Sc. Biochemistry	Guatemala
Michael	Schmidt	Vordiplom Biochemistry	Germany
Markus	Strasser	Chemiker FH (Bioengineering)	Switzerland
Paola	Valbuena	Medical Doctor	Colombia
Marta	Vuckovic	Diploma Biochemistry	Yugoslavia

Zeynep Arziman

First Name:
Zeynep

Last Name:
Arziman

Date of birth:
3 September 1979

Country:
Turkey

EDUCATION

College / University:
1997 - 2002 Middle East Technical University
Highest Degree:
B.Sc. (Molecular Biology and Genetics)
Major Subjects:
Molecular Biology and Genetics
Lab Experience:
Major techniques in molecular biology, biochemistry and genetics
Projects / Research:
2001 - 2002 METU: Expression Analysis of MRP and MDR genes in normal population and in HL60, and analysis of drug resistance
2001 Summer Training: Characterization of genes involving breakdown of isomaltose in soil bacteria, and sequencing of the Pal operon in *Protaminobacter*
Scholarships:
2002 - 2003 Stipend International Max Planck Research School

SCIENTIFIC INTERESTS AND GOALS:

I am interested in medical applications of molecular biology, especially cancer research (in terms of molecular biology of cancer and therapies), and immunology. I want to improve my knowledge and skills which will provide me with a background for being a progressive scientist and go on with research studies.

Kerstin Bartscherer

First Name:
Kerstin

Last Name:
Bartscherer

Date of birth:
29 December 1977

Country:
Germany

EDUCATION

College / University:
1998 - 2002 Mannheim University of Applied Sciences, Mannheim, Germany
Highest Degree:
B.Sc. (hons)
Major Subjects:
Biotechnology
Projects / Research:
09/2001 - 05/2002 "The role of the histone kinase RSK-2 in Tat-mediated HIV-1 transcription" (B.Sc. thesis), Applied Tumor Virology, German Cancer Research Center, Heidelberg, Germany.
08/2000 - 02/2001 "Events during cerulenin-induced apoptosis in human neuroblastoma cells with special regard to Bax" (internship), Department of Biochemistry, Cancer Research Center of Hawaii, Honolulu, HI-USA.
Scholarships:
2002 - 2003 Stipend International Max Planck Research School
2002 - 2003 Sartorius Stipend
Publications:
"Cerulenin-induced apoptosis circumvents drug-resistance mechanisms of human neuroblastoma cells", Bartscherer et al., (submitted).

SCIENTIFIC INTERESTS AND GOALS:

Performing research and translating the acquired theory into action is what makes biology exciting. This is why I believe that, although my previous research experiences have triggered my interest in immunology and apoptosis, the lab rotations in this program will open my mind for other scientific fields, and finally enable me to choose the right area for my Ph.D. thesis.

Partha Pratim Das

First Name:
Partha Pratim

Last Name:
Das

Date of birth:
30 November 1977

Country:
India

EDUCATION

College / University:
1997 - 1999: University of Calcutta, Calcutta
2000 - 2002: University of Pune, Department of Zoology

Highest Degree:
M.Sc.

Major Subjects:
Molecular Biology

Lab Experience:
Isolation of DNA (plasmid, bacterial, genomic), restriction digestion and ligation, *in situ* hybridisation, southern hybridisation, RNA isolation, agarose gel electrophoresis, SDS-PAGE; PCR; RT-PCR; tissue culture, transfection, isolation of nuclei, extraction of histones, chromatin gel electrophoresis, preparation of competent cells, transformation, westernblot, chromatography and biochemistry techniques.

Projects / Research:
"Functional identity of promoter motifs of 122 amino acids ORF from *Drosophila melanogaster*" (2001 - 2002)
"Genetic improvement of cultivated carps through genome manipulation and selective breeding" (workshop in CIFA , ICAR)
I have written a review on schizophrenia in my summer training in Department of Zoology, University of Pune (May - June 2002)

Scholarships:
2002 - 2003 Stipend International Max Planck Research School

SCIENTIFIC INTERESTS AND GOALS:

My area of interest lies in studies related to combination of cell biology, molecular biology and genetic engineering which may involve different aspects of cancer biology. I am also interested in understanding the problem of protein targeting and signal transduction which play an important role in cell proliferation in case of cancer. I have keen interest in gene expression and regulation, cell cycle, genomics, proteomics, and drug research. My career goal is to do some pathbreaking research which can be utilised for improvement and welfare of mankind.

Roland Graf

First Name:
Roland

Last Name:
Graf

Date of birth:
14 November 1977

Country:
Germany

EDUCATION

College / University:
1998 - 2002 Georg August University Göttingen, Germany

Highest Degree:
Vordiplom (Biology)

Major Subjects:
Biochemistry

Lab Experience:
DNA isolation, PCR, restriction mapping, Southern blot, antibody staining, creation of RNA probes, RNAi, creation of germ line clones, flykeeping, culturing of mammalian cell lines, transfection, enrichment culturing of various bacterial species, chemical transformation, electroporation, AMES-Test, creation of fusion-proteins, MALDI-TOF, Western Blot, various enzymatic assays

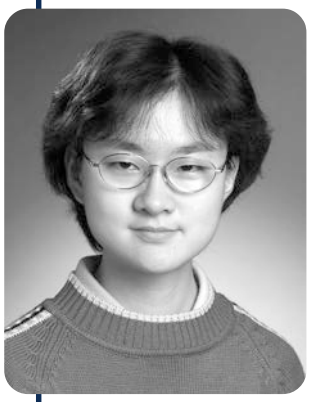
Projects / Research:
2001 kap3-function in egg-follicle development of *Drosophila*, Dept. of Molecular Developmental Biology, Max Planck Institute for Biophysical Chemistry
2002 Lysosomal membrane proteins, Dept. Biochemistry II, University of Göttingen
2002 Function of histone-I-subtypes in apoptosis, Dept. Molecular Biology, Biochemistry and Molecular Cell Biology, University of Göttingen

Scholarships:
2002 - 2003 Stipend International Max Planck Research School

SCIENTIFIC INTERESTS AND GOALS:

I have always been fascinated by science, especially the molecular branches of biology and medicine. I like the academic and practical aspects of approaching a scientific problem as well as the interaction with people from various cultures. For these reasons my goal is to establish myself in international biological research.
Since I have not yet focused on any particular molecular biology subject, I value good working atmosphere and early gain of independence much higher than working on a particular field of research.

Shirui Hou



First Name:
Shirui

Last Name:
Hou

Date of birth:
11 December 1978

Country:
P. R. China

EDUCATION

College / University:
1997 - 2001 Nankai University, Tianjin, P. R. China
Highest Degree:
B.Sc. (Biology)
Major Subjects:
Biology, Biochemistry, Microbiology
Lab Experience:
Basic techniques in biochemistry and microbiology
Projects / Research:
Undergraduate thesis at Nankai University: "The current status of biosensor and preparation of modified electrode of biosensor".
Laboratory of Plant Biotechnology, Institute of Microbiology, Chinese Academy of Sciences: research project involved construction of vectors for transfection into rice, plant tissue cultivation.
Scholarships:
2002 - 2003 Stipend International Max Planck Research School
2000 Procter & Gamble (P & G) Stipend

SCIENTIFIC INTERESTS AND GOALS:

I feel so lucky that I have chosen the biological science as my field of study, because it is an extremely challenging field that affects our daily life. Among them the regulation of gene expression is rapidly progressing and facilitating novel approaches to prevention, diagnosis and therapy of diseases. Also it could give us a better understanding of mechanisms of cell growth and differentiation. After finishing my Ph.D., I would like to further pursue a career in academic research.

Namita Kanwar

First Name:
Namita

Last Name:
Kanwar

Date of birth:
23 July 1981

Country:
India

EDUCATION

College / University:
Acharya Narendra Dev College; University of Delhi; India
Highest Degree:
B.Sc. (first class with honours)
Major Subjects:
Biomedical Sciences
Lab Experience:
Basic techniques of biotechnology and biochemistry, histopathological analysis
Projects / Research:
Drug analysis through HPLC for investigating the contents of the drug, their stability, dissolution and content uniformity at RANBAXY Research Laboratories, GURGAON, India
Scholarships:
2002 - 2003 Stipend International Max Planck Research School
2002 - 2003 Hellma Stipend

SCIENTIFIC INTERESTS AND GOALS:

I would like to work towards amalgamation of biotechnology with medicine. I am interested in studying the pathogenesis of constitutional and metabolic diseases at the molecular level, thus devising ways to treat such ailments right at the initiation phase.

Pia Kaplanek

First Name:
Pia

Last Name:
Kaplanek

Date of birth:
16 August 1979

Country:
Germany

EDUCATION

College / University:
1998 - 2001 Friedrich Schiller University, Jena, Germany
2001 - 2002 University of Toronto, Canada

Highest Degree:
Vordiplom (Biochemistry)

Major Subjects:
Biochemistry, Molecular Biology

Lab Experience:
DNA-cloning of surface molecules and expression in human cells, selection by FACS analysis, Gynaecological Hospital Jena, 2000
Oligonucleotide labelling with nano gold beads, detection by atomic force microscopy, Institute for Physical High Technology Jena, 2001
Large scale screen for protein-protein interactions using the Yeast Two Hybrid System, Dept. of Biochemistry, University of Toronto, 2001/2002

Projects / Research:
Sept. 2001 - May 2002: "Identifying and confirming interacting partners of Yeast Hsp90 using a genome-wide Two Hybrid approach", Dept. of Biochemistry, University of Toronto

Scholarships:
2002 - 03 Stipend International Max Planck Research School
2002 - 03 DeveloGen Stipend

SCIENTIFIC INTERESTS AND GOALS:

I consider the human immune system, its regulation and its mode of action in case of infections a fascinating theme. At the moment I am interested in the molecular processes of infections that cause diseases in humans and especially their connection to autoimmune diseases and cancer development. Furthermore I am interested in protein folding and signalling pathways. I am hoping to find my topic of major interest during the following year.

Elena Kardash

First Name:
Elena

Last Name:
Kardash

Date of birth:
18 July 1974

Country:
Israel

EDUCATION

College / University:
1994 - 1998 : Tel-Aviv University, Tel-Aviv, Israel

Highest Degree:
B.Sc.

Major Subjects:
Life Sciences

Lab Experience:
Cloning, PCR, RT-PCR, tissue culture, immunoprecipitation, immunofluorescence, protein purification, Western blot, Luciferase, DNA sequencing, yeast two-hybrid

Projects / Research:
1997 - 1998 B.Sc. project: Expression pattern of neurotransmitter transporters for GABA and NTT4 in the adult rat brain
1999 - 2000 visiting student at the Weizmann institute of science: Verification of protein-protein interaction between RPTP-beta and PTP-BL
2000 - 2001 Quark Biotech company, Israel: Molecular mechanisms of ischemia
2001 - 2002 Institute of Biochemistry, Erlangen, Germany: Identification of interaction partners for mammalian homolog of *glial cells missing* (GCMa) via yeast two-hybrid

Scholarships:
2002 - 2003 Stipend International Max Planck Research School
2002 - 2003 Solvay Pharmaceuticals Stipend

SCIENTIFIC INTERESTS AND GOALS:

Currently I am interested in developmental biology and cell fate determination, particularly in neuronal development. I am also interested in the field of cell cycle regulation and cancer biology.

Ulf Klein

First Name:
Ulf

Last Name:
Klein

Date of birth:
14 February 1979

Country:
Germany

EDUCATION

College / University:
1999 - 2001 University of Hannover, Germany
Highest Degree:
Vordiplom (Biology)
Major Subjects:
Biology (Physics, Chemistry, Botany, Zoology, Genetics, Microbiology)
Lab Experience:
Proteinexpression, -purification, proteinunfolding, -degradation assays, cloning, site-directed- mutagenesis, studies on biological membranes, tissue culture (HeLa, LNCaP, MCF7), transfection, FACS, immunoprecipitation, immunofluorescense
Projects / Research:
10/2001 - 4/2002 Characterization of the AAA+ ATPase PAN (*M. janaschii*) and the ATP-dependent membrane protease LON (*T. acidophilum*), Max Planck Institute for Biochemistry, Department of Molecular Structural Biology, Supervisor Dr. Peter Zwickl
4/2002 - 8/2002 Prostate Cancer and the Cell Cycle (Investigations on the androgen receptor), The Institute of Cancer Research, Cancer Research UK Centre for Cancer Therapeutics, Cell Cycle control team Dr. Michelle Garrett
Scholarships / Honor / Activities:
4/2002 - 8/2002 Leonardo da Vinci Stipend (EU Placement Programme DAAD)
2002 - 2003 Stipend International Max Planck Research School
2002 - 2003 Degussa AG Stipend (Hermann Schlosser Stiftung)

SCIENTIFIC INTERESTS AND GOALS:

I´m fascinated to see how proteins work and how their levels are regulated throughout the cell cycle. The functional variety of proteins arouses my interest and I would like to study their mutual interplay within the crowded cellular environment.

Rebecca Mathew

First Name:
Rebecca

Last Name:
Mathew

Date of birth:
9 May 1976

Country:
India

EDUCATION

College / University:
2000 - 2002 Indian Agricultural Research Institute
Highest Degree:
M.Sc.
Major Subjects:
Horticulture and Plant Physiology
Lab Experience:
Techniques in horticulture and plant physiology, tissue culture, PCR, electron microscopy, plant nutrient analysis and enzyme assay
Projects / Research:
M.Sc. thesis "Effect of VAM on growth, productivity and fertilizer economy in grape (*Vitis vinifera* L.)"
Scholarships:
2002 - 2003 Stipend International Max Planck Research School
2000 - 2002 Junior Research Fellowship, ICAR
1995 - 1996 KAU Merit Scholarship

SCIENTIFIC INTERESTS AND GOALS:

I am interested in the field of gene expression, transgenics, cloning and molecular plant physiology. I am sure this program will make me competent in the field of molecular biology. After finishing my Ph.D. I would like to do post-doctorate.

Patrick Müller

First Name:
Patrick

Last Name:
Müller

Date of birth:
27 April 1979

Country:
Germany

EDUCATION

College / University:
1999 - 2001 Georg August University, Göttingen (Germany)
2001 - 2002 University of California, Berkeley (USA)

Highest Degree:
Vordiplom (Biology)

Projects / Research:
06/1999 - 10/1999: Construction of inducible genomic library of the filamentous fungus *Aspergillus nidulans* (Institut für Mikrobiologie und Genetik, Göttingen)
07/2000 - 08/2001: Identification of pathogens and test for resistance to antibiotics with the VITEK-System (student assistant at Labor Dr. Wagner, Göttingen)
02/2002 - 05/2002: Isolation and identification of selenite detoxifying microorganisms; BIOLOG community analysis of the Panoche Algal Bacterial Selenium Removal Facility (University of California, Berkeley)
06/2002 - 08/2002: Bacterial reduction of selenite and nitrate; Influence of selenium oxyanions on the activity of essential enzymes in carbon-, sulfur-, phosphorus- and nitrogen-metabolism (student research assistant at University of California, Berkeley)
09/2002: Biocenosis-Analysis of the constructed wetland system Langenreichenbach using SSCP (student research assistant at Umweltforschungszentrum, Leipzig)

Scholarships:
2002 - 2003 KWS/PLANTA Stipend
2002 - 2003 Stipend International Max Planck Research School
2002 Money for Musicians Scholarship (ASUC Senate, Berkeley)
2001 - 2002 Education Abroad Program (University of California)
2001 Nominated for Studienstiftung des Deutschen Volkes (German National Merit Foundation)

Publications:
A. Sudame, S. Lee, H. Lee, P. Müller, K. Hida, H. Ng, T. Lundquist, P. Strom T. Leighton. "Selenite reducing bacteria of Panoche Algal Bacterial Selenium Removal (ABSR) Facility, CA". 34th Mid-Atlantic Industrial & Hazardous Waste Conf. Rutgers University, NJ USA, September 2002., pp. 159 -172

SCIENTIFIC INTERESTS AND GOALS:

Interdisciplinary research to obtain an integrated view of life.

Krystyna Nahlik

First Name:
Krystyna

Last Name:
Nahlik

Date of birth:
30 July 1978

Country:
Poland

EDUCATION

College / University:
1996 - 2001 Faculty of Biology and Earth Science, Jagiellonian University, Kraków
Jan - Jul 2001 University of North Wales, Bangor, UK
2001 - 2002 Institute of Molecular Biology, Jagiellonian University, Kraków

Highest Degree:
M.Sc. (Molecular Biology)

Major Subjects:
Molecular Biology, Virology

Lab Experience:
Various molecular biology techniques, protein and DNA methods, PCR methods and optimization, DNA array analysis, bacterial and fungal cultures, molecular modelling and DNA sequence analysis

Projects / Research:
2001: "Analysis and characterisation of three extragenic suppressors of the bimG11 temperature-sensitive mutation in *Aspergillus nidulans*" (North Wales University, Bangor)
2001 - 2002: Master's degree project "Changes in expression and cellular location of GAPDH in human adherent monocytes after infection with vaccinia virus" (Jagiellonian University, Kraków)

Scholarships:
2002 - 2003 Stipend International Max Planck Research School
1997 - 2001 State Scholarship for Academic Excellence

SCIENTIFIC INTERESTS AND GOALS:

I would like to apply my experience in molecular biology to medical research and diagnostics, especially in the area of viral diseases or tumour development. My other interests include bioinformatics and genomics. I still don't know which path I will pursue in the future, but I certainly want to be involved in scientific research and I also hope to have some part in the popularization of biological science.

Sven Pilarski

First Name:
Sven

Last Name:
Pilarski

Date of birth:
4 April 1978

Country:
Germany

EDUCATION

College / University:
1999 - 2002 Georg August University, Göttingen
Highest Degree:
Vordiplom (Biology)
Major Subjects:
Developmental Biology
Lab Experience:
Experimental Genetics, Obesity Research Group (Dr. Günter Brönner), DeveloGen AG, Göttingen, Germany
Developmental Biology, Dept. of Genetics (Clifford J. Tabin, Ph.D.), Harvard Medical School, Boston/MA, USA
Developmental Biochemistry, Dept. Developmental Biochemistry (Dr. Tomas Pieler), University of Goettingen, Germany
Projects / Research:
2000 - 2002 Genetical experiments with *Drosophila*, biochemical determination of newly discovered mutants
2001 Molecular cloning techniques, analysis of genetic expression patterns of Wnt-5a, gain-of-function experiments involving retroviral manipulations, immunohistochemical analyses of chick embryo tissues
2002 Isolation and characterization of Hes2 in *Xenopus laevis*
Scholarships:
2002 - 2003 Stipend International Max Planck Research School

SCIENTIFIC INTERESTS AND GOALS:

Developmental biology applying molecular techniques is among the future disciplines most fundamentally changing our understanding of life. I am fascinated by signalling pathways involved in cell differentiation, subsequent morphogenesis and growth, with particular focus on gene regulation and cell-cell-communication.

Fernando Rodriguez

First Name:
Fernando

Last Name:
Rodriguez

Date of birth:
23 August 1978

Country:
Guatemala

EDUCATION

College / University:
1997 - 2002 Universidad del Valle de Guatemala
Highest Degree:
B.Sc. (Biochemistry)
Major Subjects:
Lifesciences, biotechnology
Lab Experience:
Several biochemical and molecular biology techniques including PCR, nucleic acids and protein electrophoresis, column chromatography, spectroscopy and DNA sequencing
Projects / Research:
Bachelor Thesis: "Population genetics of the malaria vector the mosquito *Anopheles albimanus*, based on microsatellite DNA as molecular markers, in Latin America and the Caribbean"
Scholarships:
2002 - 2003 Stipend International Max Planck Research School
2002 - 2003 DAAD-STIBET Matching Fund
2000 - 2001 Trainee in TDR/WHO research grant on *Anopheles albimanus* population genetics study

SCIENTIFIC INTERESTS AND GOALS:

Through this MSc/PhD program, I intend to deepen my knowledge as well my research abilities in the biological sciences, since I want to become an academic and a researcher at a university. The biological fields that I find most interesting are structural biology and genomics. I would also like to explore the underlying molecular processes in different human diseases like cancer and cardiovascular diseases.

Michael Schmidt

First Name:
Michael

Last Name:
Schmidt

Date of birth:
11 April 1979

Country:
Germany

EDUCATION

College / University:
1998 - 2001 Friedrich Schiller University, Jena, Germany
2001 - 2002 McGill University, Montréal, Canada

Highest Degree:
Vordiplom (Biochemistry)

Major Subjects:
Biochemistry, Molecular Biology

Lab Experience:
DNA cloning and sequencing, protein expression and purification; EMSA, CD-spectroscopy; cell culture, chromosome preparation and analysis, FISH (Friedrich Schiller University)
Development of applications for experimental instruments (Analytik Jena AG)
PCR-based mutagenesis, cloning and yeast transformation (McGill University)

Projects / Research:
2001 - 2002: Mutational analysis of 14-3-3 proteins at a putative DNA cruciform binding site; McGill Cancer Centre and Dept. of Biochemistry, McGill University, Supervisors: Prof. Gerald B Price, Prof. Maria Zannis-Hadjopoulos

Scholarships:
2002 - 2003 Stipend International Max Planck Research School
2002 - 2003 Bayer AG Stipend

SCIENTIFIC INTERESTS AND GOALS:

I am very interested in the molecular processes that determine the biological functions or dysfunctions of living organisms and especially humans. It is fascinating to get involved in research discovering the molecular reasons for human diseases. Still a lot of basic research to understand the mechanisms involved in their development has to be done as well as strategies to cure these diseases have to be developed. There is no specific field I would like to do research in, but for now I am interested in cancer research and immunology.

Markus Strasser

First Name:
Markus

Last Name:
Strasser

Date of birth:
1 August 1977

Country:
Switzerland

EDUCATION

College / University:
1997 - 2000 Zurich University of Applied Sciences, Winterthur (ZHW), Switzerland

Highest Degree:
Chemiker FH (Degree Program in Chemistry, Specialization in Bioengineering)

Major Subjects:
Biochemistry

Lab Experience:
Chemo- and bioanalytics, cell biology, microbiology, fermentation and downstream processing

Projects / Research:
2000 Determination of human Col II/Col I ratio in *in vitro* cultivated cartilage with quantitative gel electrophoresis (diploma project)
2001 Determination of human Col II/Col I ratio with ELISA. Quantification of collagen and proteoglycans in *in vitro* cultivated cartilage (research assistant)

Scholarships:
2002 - 2003 Stipend International Max Planck Research School
1997 - 2000 Stipend Dr. Gadient Engi-Stiftung (Novartis AG)

SCIENTIFIC INTERESTS AND GOALS:

I am interested in understanding more of cell differentiation (genetics and proteomics). My goal is to learn the theoretical backgrounds which enable me to work as a scientist in the field of life sciences.

Paola Valbuena

First Name:
Paola

Last Name:
Valbuena

Date of birth:
22 February 1979

Country:
Colombia

EDUCATION

College / University:
1996 - 2001 Universidad Autonoma de Bucaramanga (UNAB), Colombia
2001 - 2002 William J. Harrington Program; University of Miami, USA

Highest Degree:
Medical Doctor

Major Subjects:
Basic sciences and clinical practice / medicine related

Lab Experience:
Basic training in histology and microbiology analysis
Basic molecular biology techniques for DNA extraction and PCR

Projects / Research:
1998 Mycobacterium tuberculosis protocol / epidemiological data in Santander, Colombia. Universidad Autonoma de Bucaramanga
2001 Klippel-Trenaunay Syndrome Monograph. 1st Symposium of Vascular Surgery. Universidad Autonoma de Bucaramanga

Scholarships:
2002 - 2003 Stipend International Max Planck Research School

Publications:
1999 Review of Benign Prostatic Hyperplasia. MEDUNAB Magazine

SCIENTIFIC INTERESTS AND GOALS:

I am interested in improving my research knowledge and experience. I think that molecular biology gives us the tools to understand the molecular mechanism of disease. By using this information we can develop new alternatives to treat complex diseases that threaten mankind.
I want to do research related to the medical field. My areas of interest are genetics, oncology and infectious diseases.

Marta Vuckovic

First Name:
Marta

Last Name:
Vuckovic

Date of birth:
16 July 1978

Country:
Yugoslavia

EDUCATION

College / University:
1997 - 2002 University of Belgrade, Faculty of Chemistry, Department for Biochemistry

Highest Degree:
Diploma (Biochemistry)

Major Subjects:
Biochemistry, molecular biology, cell biology

Lab Experience:
Protein isolation and purification, techniques used in microbiology and immunochemistry, enzyme kinetics assays, fermentation of yeast cells, PCR

Projects / Research:
1998 - 2000 "Presence of essential micro- and macroelements in diet of the population in Serbia", Institute for Chemistry, Technology and Metallurgy, Belgrade; project was awarded on "Third International Bio-Olympics" 1998 in St. Petersburg, Russian Federation
2002 "Use of PCR in diagnostics of tuberculosis" - diploma thesis project, Biochemical laboratory "Hexalab", Belgrade

Scholarships:
2002 - 2003 Stipend International Max Planck Research School
2000 - 2002 Ministry for Education in Serbia
2002 Royal Norwegian Embassy, Belgrade "For the promising generation"
1998 - 2000 "Madlena Jankovic-Zepter Fund"

Publications:
"Daily Dietary Intake of Magnesium in the Human Population in Serbia" European Magnesium Research 3 (12) 1999

SCIENTIFIC INTERESTS AND GOALS:

Molecular signalling processes and their relationship with gene regulation during apoptosis and cancer are my favourite topics at the moment. I wish to get the best education possible to be prepared to work in the research area that fascinates me the most.

Graduate Program Committee

Prof. Dr. Gerhard Braus
Prof. Dr. Reinhard Jahn
Prof. Dr. Wolfgang Liebl
Prof. Dr. Tomas Pieler
Prof. Dr. Christiane Gatz
Dr. Wilfried Kramer
Steffen Lemke
Ralf Jauch
Roland Graf

GZMB Board Members

Prof. Dr. Kurt von Figura
Prof. Dr. Christiane Gatz
Prof. Dr. Tomas Pieler
Prof. Dr. Axel Zeeck
Dr. Rainer Merkl
Dr. Anke Schürer
Willi Gräber

Program Coordination

Dr. Steffen Burkhardt
(Program Coordinator)

Dr. Dorothee Wegener
(Program Coordinator)

Sabine Schacht
(Program Assistant)

Coordination Office
Molecular Biology
Georg-August-Universität
Justus-von-Liebig-Weg 11

37077 Göttingen
Germany

phone:
+49 – 551 – 39 12110 / 12111
fax:
+49 – 551 – 39 3811
e-mail:
gpmolbio@gwdg.de

Further Information:
http://www.gpmolbio.uni-goettingen.de

(Senior Faculty, Group Leaders, Lecturers)

Donna J.	Arndt-Jovin	Molecular Biology	MPI bpc
Mathias	Bähr	Neurology	U Göttingen
Botho	Bowien	Microbiology	U Göttingen
Gerhard H.	Braus	Molecular Microbiology	U Göttingen
Bertram	Brenig	Molecular Biology of Livestock	U Göttingen
Nils	Brose	Molecular Neurobiology	MPI em
Detlef	Doenecke	Biochemistry	U Göttingen
Wolfgang	Engel	Human Genetics	U Göttingen
Ivo	Feußner	Plant Biochemistry	U Göttingen
Ralf	Ficner	Molecular Structural Biology	U Göttingen
Kurt	Figura, von	Biochemistry	U Göttingen
Gabriele	Fischer-v.-Mollard	Biochemistry	U Göttingen
Hans-Joachim	Fritz	Molecular Genetics	U Göttingen
Dieter	Gallwitz	Molecular Genetics	MPI bpc
Christiane	Gatz	General and Developmental Physiology of the Plant	U Göttingen
Gerhard	Gottschalk	Microbiology	U Göttingen
Christian	Griesinger	NMR-based Structural Biology	MPI bpc
Uwe	Groß	Bacteriology	U Göttingen
Eberhard	Günther	Immunogenetics	U Göttingen
Heidi	Hahn	Human Genetics	U Göttingen
Volker	Haucke	Biochemistry and Molecular Cell Biology	U Göttingen
Herbert	Jäckle	Molecular Developmental Biology	MPI bpc
Reinhard	Jahn	Neurobiology	MPI bpc
Michael	Kessel	Molecular Biology	MPI bpc
Willhart	Knepel	Molecular Pharmacology	U Göttingen
Kerstin	Krieglstein	Neuroanatomy	U Göttingen
Wolfgang	Liebl	Microbiology	U Göttingen
Reinhard	Lührmann	Cellular Biochemistry	MPI bpc
Ahmed	Mansouri	Molecular Developmental Genetics	MPI bpc
Rainer	Merkl	Computer Scientist	U Göttingen
Hans-Ulrich	Mösch	Microbiology and Genetics	U Göttingen
Erwin	Neher	Membrane Biophysics	MPI bpc
Mary	Osborn	Biochemistry and Cell Biology	MPI bpc
Katharina	Pawlowski	Plant Biochemistry	U Göttingen
Tomas	Pieler	Developmental Biochemistry	U Göttingen
Irmelin	Probst	Biochemistry and Molecular Cell Biology	U Göttingen
Erez	Raz	Developmental Biology	MPI bpc
Christian	Rosenmund	Membrane Biophysics	MPI bpc
Ruth A.	Schmitz-Streit	Microbiology	U Göttingen
Thomas	Schneider	Structural Chemistry	U Göttingen
Ekkehard	Schulze	Developmental Biology	U Göttingen
George Michael	Sheldrick	Structural Chemistry	U Göttingen
Axel	Zeeck	Biomolecular Chemistry	U Göttingen
Martin	Zeidler	Developmental Biology	MPI bpc

Donna J. Arndt-Jovin

Professor, Group Leader at the Max Planck Institute for Biophysical Chemistry

A.B., Chemistry, Hiram College, 1963
Ph.D., Biochemistry, Yale University, 1969
Fellow of the Jane Coffin Childs Memorial Fund for Medical Research, Department of Biochemistry, Stanford University School of Medicine, 1969 - 1971
Research Scientist, Max Planck Institute for Biophysical Chemistry, 1971 - 1993
Senior Research Scientist, Max Planck Institute for Biophysical Chemistry, 1993 - present

Address

Dept. of Molecular Biology
Max Planck Institute for Biophysical Chemistry
Am Fassberg 11
37077 Göttingen

Germany

phone:
+ 49-551-201 1393
fax:
+ 49-551-201 1467
e-mail: djovin@gwdg.de

Further Information:

http://www.mpibpc.gwdg.de/abteilungen/060/people/donna/index.html

Major Research Interests:

Chromatin structure and function *in vivo*,

(a) the study of nuclear architecture using immunochemistry, *in situ* hybridization, and 3-D image microscopy

(b) the role of DNA conformation in gene expression and development of Dipteran embryos with focus on polycomb group proteins and chromatin modulating enzymes

Signal transduction processes: cell surface antigen-receptor proximities and mobilities focused on the erb B receptor family in living tissue culture cells.
DNA structure and function. Biological roles of unusual helical DNA structures.

Selected Recent Publications:

Gemkow M, Verveer PJ, Arndt-Jovin DJ (1998) Homologous association of the Bithorax-Complex during embryogenesis: consequences for transvection in *Drosophila melanogaster*. Development 125: 4541-4552

Gemkow MJ, Dichter J, Arndt-Jovin DJ (2001) Developmental regulation of DNA-Topoisomerases during *Drosophila* embryogenesis. Exp Cell Res 262: 114-121

Shchyolkina A, Timofeev EN, Lysov YP, Florentiev VL, Jovin TM, Arndt-Jovin DJ (2001) Protein-free parallel triple-stranded DNA complex formation. Nucleic Acids Res 29: 986-995

Heintzmann R, Hanley QS, Arndt-Jovin DJ, Jovin TM (2001) A dual path programmable array microscope (PAM): simultaneous acquisition of conjugate and non-conjugate images. J Microsc 204: 119-135

Nagy P, Arndt-Jovin DJ, Jovin TM (2002) Small interfering RNAs suppress the expression and function of endogenous and GFP-fused epidermal growth factor receptor (erbB1). in press

Mathias Bähr

Professor of Neurology

1985 MD, University of Tübingen Medical School, Training in Neurology at University Hospitals in Tübingen and Düsseldorf
DFG and Max Planck Fellow at the Max Planck Institute for Developmental Biology Tübingen and at the Department of Anatomy and Cell Biology, Washington University St.Louis
Schilling Foundation Professor for Clinical and Experimental Neurology, University of Tübingen
Director at the Department of Neurology, University of Göttingen since 2001

Major Research Interests:

We are interested to understand 2 basic questions in cellular and molecular neurobiology:
1. Which factors support survival of adult CNS neurons?
2. What kills these cells under pathological conditions?

Up to now, only little is known about the mechanisms that support survival of a postmitotic cell like a human neuron for eventually more than 100 years under physiological conditions. However, by examining the molecular regulation of cell survival and cell death during development and in the lesioned adult CNS, one may get some clues to answer this question.
In our group, several *in vitro* and *in vivo* model systems are used which allow examination of neuronal de- and regeneration. Our basic model is the rodent retino-tectal projection. Here, we can study development, de- and regeneration of the respective projection neurons, the retinal ganglion cells (RGCs) in single cell cultures, explants or *in vivo*. Transection or crush-axotomy of the optic nerve induces retrograde death more than 80% of RGCs within two weeks. This secondary cell loss is mainly apoptotic and involves specific changes in gene expression pattern of transcription factors (e.g. c-jun or ATF-2), pro- and anti-apoptotic genes (e.g. bcl-2 or bax) and growth-associated genes (like GAP-43). Thus, long term survival and initiation of regeneration programmes of RGCs critically depends on inhibition of apoptotic cell death. To that end, we have used a variety of techniques to interfere with the cell death cascades that follow lesions of the optic nerve in adult rats. Inhibition of neuronal apoptosis can be afforded by pharmacological administration of trophic factors or by gene therapy approaches using adenovirus vectors that can deliver neurotrophic factors directly into neurons or into surrounding glial cells. These, an other new strategies like using transduction-domains to deliver anti-apoptotic proteins across the blood-brain-barrier are now used to develop new experimental therapy strategies in animal models of human neurological disorders like stroke, trauma, multiple sclerosis od neurodegenerative diseases (e.g. Alzheimer ‘s or Parkinson’s disease).

Address

Zentrum
Neurologische Medizin, Neurologie
Georg-August-Universität Göttingen
Robert-Koch-Str. 40

37075 Göttingen
Germany

phone:
+ 49-551-39 6603
fax:
+ 49-551-39 8405
e-mail:
mbaehr@gwdg.de

Further Information:

http://www.mi.med.uni-goettingen.de/baehr-lab/

Selected Recent Publications:

Klöcker N, Kermer P, Weishaupt JH, Labes M, Ankerhold R, Bähr M (2000) BDNF mediated neuroprotection of adult rat retinal ganglion cells *in vivo* does not exclusively depend on PI-3-K/PKB signalling. J Neurosci 20: 6962-6967

Bähr M (2000) Live and let die - Survival and cell death in the developing and lesioned adult CNS. TINS 23(10): 483-490

Diem R, Meyer R, Weisshaupt J, Bähr M (2001) Reduction of potassium currents and PI3-K-dependent Akt phosphorylation by tumor necrosis factor a rescues axotomized retinal ganglion cells from secondary cell death *in vivo*. J Neurosci 21(6): 2058-2066

Meyer R, Weissert R, Graaf K de, Diem R, Bähr M (2001) Acute neuronal apoptosis in a rat model of multiple sclerosis. J Neurosci 21: 6214-6220

Kilic E, Dietz GPH, Herrmann DM, Bähr M (2002) Intravenous TAT-Bcl-XL is protective when delivered before and after middle cerebral artery occlusion in mice. Ann Neurol: in press

Botho Bowien

Professor of Microbiology

Dr. rer. nat., Georg-August-Universität Göttingen, 1970
Postdoc, Case Western Reserve University, Cleveland, Ohio, USA, 1973 - 1975
Habilitation (Microbiology), Georg-August-Universität Göttingen, 1978
Professor of Microbiology, Georg-August-Universität Göttingen, 1983

Address

Institut für Mikrobiologie
und Genetik
Georg-August-
Universität Göttingen
Grisebachstr. 8

37077 Göttingen
Germany

phone:
+49-551-39 3815
fax:
+49-551-39 9842
e-mail:
bbowien@gwdg.de

Further Information:

http://www.gwdg.de/
~molmibio

Major Research Interests:

Carbon dioxide (CO_2) is an essential gas for all organisms. Assimilation of CO_2 by autotrophs such as the photosynthetic higher plants, algae and cyanobacteria constitutes the primary biosynthetic activity in the biosphere. In addition to these organisms there is a great diversity of photo- and/or chemoautotrophic bacteria and archaea. Such organisms are often facultative autotrophs, i.e. they are able to grow either autotrophically or heterotrophically. The mutual shift between autorophy and heterotrophy requires a sophisticated regulation on the metabolic as well as genetic level.

Ralstonia eutropha is an aerobic, facultatively chemoautotrophic bacterium that assimilates CO_2, like the majority of autotrophs, via the Calvin-Benson-Bassham (CBB) carbon reduction cycle. A main interest of our laboratory concerns the transcriptional control of the *cbb* operons encoding most of the CBB enzymes in *R. eutropha*. The regulatory components of the *cbb* system, their response to metabolic signals and the interlocking of the *cbb* control with larger regulatory networks are the prime research subjects.

Apart from hydrogen formate serves as an energy source during organoautotrophic growth of *R. eutropha*. Formate is oxidized to CO_2 by formate dehydrogenases which are molybdo- or tungstoenzymes in this organism. Another research topic addresses the genetic organization and transcriptional regulation of the formate dehydrogenases. We are also interested in the biosynthesis of the molybdo-/tungstopterin cofactor.

The third field of research is the basal CO_2 metabolism in *R. eutropha* and *Escherichia coli*. It focusses on the physiological role(s) of carbonic anhydrase(s) and potential CO_2/bicarbonate uptake systems.

Selected Recent Publications:

Kusian B, Sültemeyer D, Bowien B (2002) Carbonic anhydrase is essential for growth of *Ralstonia eutropha* at ambient CO_2 concentrations. J Bacteriol 184: 5018-5026

Bowien B, Kusian B (2002) Genetics and control of CO_2 assimilation in the chemoautotroph *Ralstonia eutropha*. Arch Microbiol 178: 85-93

Burgdorf T, Bömmer D, Bowien B (2001) Involvement of an unusual mol operon in molybdopterin cofactor biosynthesis in *Ralstonia eutropha*. J Mol Microbiol Biotechnol 3: 619-629

Grzeszik C, Jeffke T, Schäferjohann J, Kusian B, Bowien B (2000) Phosphoenolpyruvate is a signal metabolite in transcriptional control of the cbb CO_2 fixation operons in *Ralstonia eutropha*. J Mol Microbiol Biotechnol 2: 311-320

Gerhard H. Braus

Professor of Molecular Microbiology and Genetics

Diploma (Biology), Albert-Ludwig University, Freiburg i. Br. (Germany), 1983
Dr.sc.nat., Swiss Federal Institute of Technology (ETH), Zürich (Switzerland), 1987
Habilitation (Microbiology), Swiss Federal Institute of Technology (ETH), Zürich (Switzerland), 1991
Associate Professor of Biochemistry, Friedrich Alexander University, Erlangen (Germany), 1993 - 1996

Major Research Interests:

Metabolism and Development in Yeasts and Filamentous Fungi

Amino acids are essential precursors of translation and their biosynthesis is carefully regulated at both the transcriptional and the enzymatic level. In yeast and filamentous fungi, amino acid starvation activates a complex genetic network including a signal transduction pathway and the transcriptional activator Gcn4p/CpcAp. This network co-ordinately regulates more than 50 genes in numerous biosynthetic pathways.

We are interested in the components of this genetic system, the crosstalk to other metabolic genetic networks in the cell (N-metabolism, purine biosynthesis), the trancriptional regulation and the chromatin structure of target genes.

In addition, the amino acid network interacts with developmental programs like filamentous growth in yeast or the formation of fruitbodies in the filamentous fungus *A. nidulans*. We analyse the control points and the molecular switches which connect metabolism and development.

Another interest of the laboratory is the construction of amino acid biosynthetic enzymes with altered regulatory response. Therefore we analyse the intramolecular signal transduction pathway within regulated allosteric enzymes from the regulatory site to the catalytic center. The crystal structures of several mutant chorismate mutases served as one example which gave us first hints how different effectors act on this enzyme.

Address

Dept. of Molecular Microbiology and Genetics
University of Göttingen
Grisebachstr. 8

37077 Göttingen
Germany

phone:
+49-551-39 3771
fax:
+49-551-39 3820
e-mail:
gbraus@gwdg.de

Further Information:

http://www.gwdg.de/~molmibio

Selected Recent Publications:

Grundmann O, Mösch HU, Braus GH (2001) Repression of GCN4 mRNA translation by nitrogen starvation in *S. cerevisiae*. J Biol Chem 276: 25661-25671

Helmstaedt K, Krappmann S, Braus GH (2001) Allosteric regulation of catalytic activity: *E.coli* ATCase versus yeast chorismate mutase. Microbiol Mol Biol Rev 65: 404-421

Hoffmann B, Valerius O, Andermann M, Braus GH (2001) Transcriptional autoregulation and inhibition of mRNA translation of the amino acid regulator gene cpcA of the filamentous fungus *Aspergillus nidulans*. Mol Biol Cell 12: 2846-2857

Bolte M, Steigemann P, Braus GH, Irniger S (2002) Inhibition of APC-mediated proteolysis by the meiosis-specific protein kinase Ime2. Proc Natl Acad Sci USA 99: 4385-4380

Düvel K, Valerius O, Mangus DA, Jacobson A, Braus GH (2002) Replacement of the yeast TRP4 3'untranslated region by a hammerhead ribozyme results in a stable and efficiently exported transcript that lacks a poly(A) tail. RNA 8: 336-344

Valerius O, Brendel C, Düvel K, Braus GH (2002) Multiple factors prevent transcriptional interference at the yeast. ARO4-HIS7 locus. J Biol Chem 277: 21440-21445

Helmstaedt K, Heinrich G, Lipscomb WN, Braus GH (2002) A refined molecular hinge between allosteric and catalytic domain determines allosteric regulation and stability of fungal chorismate mutase. Submitted for publication. Proc Natl Acad Sci USA 10: 6631-6636

Bertram Brenig

Full Professor of Molecular Biology of Livestock

Director of the Institute of Veterinary Medicine
Dr. med. vet., University of Munich, Munich 1987

Address

Institute of Veterinary Medicine
Dept. Molecular Biology of Livestock
University of Göttingen
Groner Landstr. 2

37073 Göttingen
Germany

phone:
+49-551-39 3383
or 39 3381
fax:
+49-551-39 3392
e-mail:
bbrenig@gwdg.de

Further Information:

http://www.gwdg.de/~bbrenig/

Major Research Interests:

The main interest of the laboratory is in the structural and functional analysis of mammalian genes and genomes. So far our main focus was on porcine genes and their function. However, in recent years we have also started to look at genes in other species, e.g. cattle, dog, sheep, and buffalo. The molecular analysis of complex eukaryotic organisms needs several sophisticated tools. For the mapping and identification of novel genes genome screening and megabase cloning techniques are required. We have cloned several megabase libraries of pig, which are used by a number of labs around the world. Since several years we are analysing genes in skeletal muscle development and differentiation, e.g. RYR1, SMTRD, and DAG. Another interest of the laboratory is in the analysis of disorders in mammals. Currently we are investigating the cause of different economical important genetic defects in livestock and other domesticated animals, e.g. "pink tooth" disease in sheep, Morbus Perthes disease in dogs, cryptorchidism and hernia inguinalis in dogs and pigs, and bulldog in Dexter cattle.

Selected Recent Publications:

Knorr C, Uibeleisen A C, Kollers S, Fries R, and Brenig B (2001) Assignment of the Homeobox A10 gene (HOXA10) to porcine chromosome SSC18q23-->q24 by FISH and confirmation by hybrid panel analyses. Cytogenet Cell Genet 93: 145-146

Leeb T, Neumann S, Deppe A, Breen M, and Brenig B (2000) Genomic Organization of the Dog Dystroglycan Gene DAG1 Locus on Chromosome 20q15.1-q15.2. Genome Res 10: 295-301

Spotter A, Drogemuller C, Kuiper H, Brenig B, Leeb T, and Distl O (2001) Molecular characterization and chromosome assignment of the porcine gene for leukemia inhibitory factor LIF. Cytogenet Cell Genet 93: 87-90

Thomsen H, Reinsch N, Xu N, Bennewitz J, Looft C, Grupe S, Kuhn C, Brockmann G A, Schwerin M, Leyhe-Horn B, Hiendleder S, Erhardt G, Medjugorac I, Russ I, Forster M, Brenig B, Reinhardt F, Reents R, Blumel J, Averdunk G, and Kalm E (2001) A whole genome scan for differences in recombination rates among three Bos taurus breeds. Mamm Genome 12: 724-728

Nils Brose

Professor, Director at the Max Planck Institute for Experimental Medicine

Dr. rer. nat. (Ph.D.) 1990, Ludwig Maximilians University Munich
Appointed as Director at the Max Planck Institute for Experimental Medicine 2001

Address

Department of Molecular Neurobiology
Max Planck Institute for Experimental Medicine
Hermann-Rein-Str. 3

37075 Göttingen
Germany

phone:
+49-551-38 99725
fax:
+49-551-38 99707

Further Information:

http://www.em.mpg.de/User/Brose/index.html

Major Research Interests:

Research in the Department of Molecular Neurobiology focuses on the molecular mechanisms of synapse formation and function in the vertebrate central nervous system. Typically, synapses are formed between cellular processes of a sending and a receiving nerve cell. They are the central information processing units in the vertebrate brain where some 10^{12} nerve cells are connected by 10^{15} synapses to form an elaborate and highly structured neuronal network that is the basis for all forms of behaviour. Signal transmission at synapses is mediated by the regulated release of signal molecules (neurotransmitters) which then diffuse to the receiving nerve cell and change its physiological state. In the Department of Molecular Neurobiology, we combine biochemical, morphological, mouse genetic, behavioural, and physiological methods to elucidate the molecular basis of synapse formation and transmitter release processes. Our synaptogenesis research concentrates on synaptic cell adhesion proteins of the Neuroligin family and their role in synapse formation. Studies on the molecular mechanisms of neurotransmitter release focus on components of the presynaptic active zone (Munc13s, RIM, Complexins) and their regulatory function in synaptic vesicle fusion.

Selected Recent Publications:

Augustin I, Korte S, Rickmann M, Kretzschmar HA, Südhof TC, Herms JW, Brose N (2001) The cerebellum-specific Munc13 isoform Munc13-3 regulates cerebellar synaptic transmission and motor lerning in mice. J Neurosci 21: 10-17

Reim K, Mansour M, Varoqueaux F, McMahon HT, Südhof TC, Brose N, Rosenmund C (2001) Complexins regulate a late step in Ca^{2+}-dependent neurotransmitter release. Cell 104: 71-81

Betz A, Thakur P, Junge HJ, Ashery U, Rhee JS, Scheuss V, Rosenmund C, Rettig, J Brose N (2001) Functional interaction of the active zone proteins Munc13-1 and RIM1 in synaptic vesicle priming. Neuron 30: 183-196

Rhee JS, Betz A, Pyott S, Reim K, Varoqueaux F, Augustin I, Hesse D, Südhof TC, Takahashi M, Rosenmund C, Brose N (2002) β Phorbol ester- and diacylglycerol-induced augmentation of transmitter release is mediated by Munc13s and not by PKCs. Cell 108: 121-133

Varoqueaux F, Sigler A, Rhee JS, Brose N, Enk C, Reim K, Rosenmund C (2002) Total arrest of spontaneous and evoked synaptic transmission but normal synaptogenesis in the absence of Munc13-mediated vesicle priming. Proc Natl Acad Sci USA 99: 9037-9042

Detlef Doenecke

Professor of Biochemistry

MD, 1967, University Saarland Medical School
Postdoc at the Universities of San
Francisco (UCSF) and Marburg
Professor of Biochemistry, 1987, University of Göttingen
Head of Dept. Molecular Biology at the Institute of Biochemistry and Molecular Cell Biology

Address

Dept. Molecular Biology
Biochemistry and
Molecular Cell Biology
University of Göttingen
Humboldtallee 23

37073 Göttingen
Germany

phone:
+49-551-39 5972
fax:
+49-551-39 5960
e-mail:
ddoenec@gwdg.de

Further Information:

http://www.
uni-bc.gwdg.de/
Doenecke.htm

Major Research Interests:

The main interest of the laboratory is in mammalian histones and histone genes, and in the multiple subtypes of individual histone classes. Histones are the major structural proteins of eukaryotic chromosomes. DNA replication during the S-phase of the cell cycle requires the coordinate synthesis of histones (H1, H2A, H2B, H3 and H4) in stoichiometric amounts for the assembly of chromatin on replicated DNA. The major human histone gene cluster has been mapped to chromosome 6p21.1-6p22.2. It was isolated and more than 50 histone genes were identified and sequenced. In contrast to these clustered, S phase-dependent genes, several S phase-independent histone genes (replacement histone genes) map as solitary genes to other chromosomes. Current work in this project is focused on the regulation of individual histone gene subtypes.

A second major project deals with the factors mediating the transport of histone proteins from the cytoplasm to the nucleus. This work concentrates on the differential role of nuclear import receptors and specific protein-protein interactions during the nuclear transport of linker and core histone proteins. The third topic of research deals with the structural transitions of chromatin during programmed cell death. The focus of this project is on the role of histone modifications and on the control of DNA fragmentation during the apoptotic process.

Selected Recent Publications:

Albig W, Doenecke D (1997) The human histone gene cluster at the D6S105 locus. Hum Genet 101: 284-294

Jäkel S, Albig W, Kutay U, Bischoff FR, Schwamborn K, Doenecke D, Görlich D (1999) The importin ß/importin 7 heterodimer is a functional import receptor for histone H1. EMBO J 18: 2411-2423

Drabent B, Saftig P, Bode C, Doenecke D (2000) Spermatogenesis proceeds normally in mice without linker histone H 1t. Histochem Cell Biol 113: 433-442

Kratzmeier W, Albig W, Hänecke K, Doenecke D (2000) Rapid dephosphorylation of H1 histones after apoptosis induction. J Biol Chem 275: 30478-30486

Baake M, Doenecke D, Albig W (2001) Characterization of nuclear localisation signals of the four human core histones. J Cell Biochem 81: 333-346

Olins AL, Herrmann H, Lichter P, Kratzmeier M, Doenecke D, Olins DE (2001) Retinoic acid and phorbol ester induced chenges in nuclear components of HL-60 cells. Exp Cell Res 268: 115-127

Bäuerle M, Doenecke D, Albig W (2002) The requirement of H1 histones for a heterodimeric nuclear import receptor. J Biol Chem 277: 32480-32489

Wolfgang Engel

Professor of Human Genetics

Dr. med., Universität Freiburg, 1967
Physician, Hospital Schorndorf, 1966 - 1968
Postdoc, Institute of Human Genetics and Anthropology, Universität Freiburg, 1968 - 1977
Habilitation (Human Genetics), Universität Freiburg, 1974
Professor of Human Genetics and Director of the Institute, Universität Göttingen, 1977

Major Research Interests:

7% of men are infertile and in about 37% of them, infertility is suggested to be due to genetic defects. We are interested in the isolation, characterization and functional analysis of genes which are involved in the differentiation of male germ cells. Functional analysis is studied in transgenic and knock-out mice. The characterized genes could be candidate genes for male infertility.

Cryptorchidism (abdominal or inguinal position of the testes) occurs in 0.5 to 1% of men and results in male infertility. Furthermore, cryptorchid men have an increased risk for testicular tumors. We have isolated the Insl3 gene which is only expressed in testicular Leydig cells. Mice deficient for the Insl3 gene show bilateral, abdominal cryptorchidism. Therefore these mice can be used as a model system for the study of cryptorchidism in human and for the evaluation of downstream and upstream target genes in the gene cascade.

Testicular seminomas are the most frequently occuring tumors in young men. To date it is unknown from which type of germ cells seminomas derive from. Using transgenic mice, in which an oncogene is under the control of germ cell specific promoters, this question can be answered. Furthermore, these mouse models are suitable for the isolation and characterization of genes which are involved in malignant germ cell transformation and seminoma development.

Address

Institut für
Humangenetik
Universität Göttingen
Heinrich-Düker-Weg 12

37073 Göttingen
Germany

phone:
+49-551-39 7590
fax:
+49-551-39 9303
e-mail:
wengel@gwdg. de

Further Information:

http://www.
humangenetik.gwdg.de/

Selected Recent Publications:

Nayernia K, Adham IM, Burkhardt-Göttges E, Neesen J, Rieche M, Wold S, Sancken U, Kleene K, Engel W (2002) Asthenozoospermia in mice with targeted deletion of the sperm mitochondrion-associated cysteine-rich protein (Smcp) gene. Molecular and Cellular Biology 9: 3046-3052

Trappe R, Ahmed M, Gläser B, Vogel C, Tascou S, Burfeind P, Engel W (2002) Identification and characterization of a novel murine multigene family containing a PHD-finger-like motif. Biochemical and Biophysical Research Communications 296: 319-327

Zimmermann S, Steding G, Emmen JMA, Brinkmann AO, Nayernia K, Holstein AF, Engel W, Adham IM (1999) Targeted disruption of the Insl3 gene causes bilateral cryptorchidism. Molecular Endocrinology 13: 681-691

Shamsadin R, Adham IM, Nayernia K, Heinlein UAO, Oberwinkler H, Engel W (1999) Male mice deficient for germ-cell Cyritestin are infertile. Biology of Reproduction 61: 1445-1451

Neesen, J., Kirschner, R., Ochs, M., Schmiedl, A., Habermann, B. Mueller, C. Holstein, A., F., Nuesslein, T., Adhman, I. Engel, W.(2001) Disruption of an inner arm dynein heavy chain gene results in asthenozoospermia and reduced ciliary beat frequency. Human Molecular Genetics 109 (11): 1117-1128

Ivo Feußner

Professor of Biochemistry

Diploma (Chemistry), Philipps-University, Marburg (Germany), 1990
Dr. rer. nat., Philipps-University, Marburg (Germany), 1993
Leader of an independent research group at the Institute for Plant Biochemistry (IPB), Halle/Saale (Germany), 1997 - 1999
Habilitation (Biochemistry), Martin-Luther-University, Halle/Saale (Germany), 2000
Leader of an independent research group at Institute for Plant Genetics and Crop Plant Research (IPK), Gatersleben (Germany), 2000 - 2002
Since 2002 Professor of Biochemistry, Georg-August-University, Göttingen (Germany)
Award: Habilitation-Prize of the Ernst Schering Research Foundation (2001)

Address

Albrecht-von-Haller-Institute for Plant Sciences
Dept. of Plant Biochemistry
University of Göttingen
Justus-von-Liebig-Weg 11

37077 Göttingen
Germany

phone:
+49-551-39 5743
fax:
+49-551-39 5749
e-mail:
ifeussn@gwdg.de

Further Information:

http://www.gwdg.de/~sreuman/

Major Research Interests:

Plant Metabolic Pathways

Our laboratory is currently studying the primary metabolism of plants with main focus on the metabolism of lipids. For this purpose, different approaches ranging from analytical chemistry to biochemistry and molecular biology were used.

Plant Lipid Metabolism: We are interested in physiological functions of specific lipoxygenases, i.e. their involvement in the degradation of storage lipids during germination and in the destruction of organellar membranes during stress. Another research topic is the analysis of their catalytic mechanism. In addition, lipid peroxidation reactions were analysed in general by metabolomic approaches and by studying the biosynthesis of aldehydes (fruit aromas), hydroxy fatty acids and divinyl ether fatty acids (plant defence). Moreover, enzymes which introduce new functionalities (i.e. conjugated double bonds) in the fatty acid backbone were isolated and characterized in order to obtain new seed oils for biotechnological and medical purposes. In relation to that we are manipulating the primary metabolism and organelle development of seeds in order to increase the oil content of seeds.

Metabolic transport processes: Another research topic is the analysis of the mechanism and regulation of transport processes across the peroxisomal membrane. Other studies deal with transport processes involved in the loading of the phloem for long-distance transport of photoassimilates. Moreover, transport processes in root nodules in the course of symbiotic nitrogen fixation by plants and the mechanism of the induction of root nodules are investigated at the molecular level.

Selected Recent Publications:

Stumpe M, Kandzia R, Göbel C, Rosahl S, Feussner I (2001) A pathogen-inducible divinyl ether synthase (*CYP74D*) from elicitor-treated potato suspension cells. FEBS Lett 507: 371-376

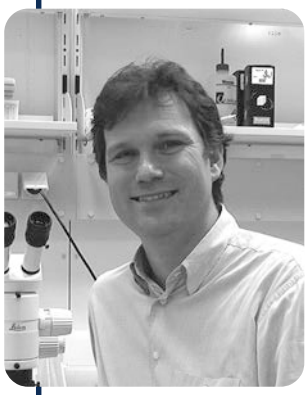
Feussner I, Kühn H, Wasternack C (2001) The lipoxygenase dependent degradation of storage lipids. Trends Plant Sci 6: 268-273

Weichert H, Kolbe A, Kraus A, Wasternack C, Feussner I (2002) Metabolic profiling of oxylipins in germinating cucumber seedlings - lipoxygenase-dependent degradation of triacylglycerols and biosynthesis of volatile aldehydes. Planta 215: 612-619

Feussner I, Wasternack C (2002) The lipoxygenase pathway. Ann Rev Plant Biol 53: 275-297

Hornung E, Pernstich C, Feussner I (2002) Formation of conjugated Δ^{11}, Δ^{13}-double bonds by Δ^{12}-linoleic acid (1,4)-acyl-lipid-desaturase in pomegranate seeds. Eur J Biochem: in press

Ralf Ficner



Professor of Structural Biology

Dr. rer. nat. (1992) and Postdoc (1993), Max Planck Institute for Biochemistry, Martinsried
Postdoctoral fellow, EMBL Heidelberg, 1994 - 1996
Junior Group Leader, University of Marburg, 1997 - 2000
Appointed 2001 as Head of the Department of Molecular Structural Biology at the University of Göttingen

Address

Department of
Molecular Structural
Biology
Institute for Microbiology
and Genetics & GZMB
University of Göttingen
Justus-von-Liebig-
Weg 11

37077 Göttingen
Germany

phone:
+49-551-39 14072
fax:
+49-551-39 14082
e-mail:
rficner@gwdg.de

Major Research Interests:

Our major interest is the structure – function relationship of biological macromolecules. We determine the three-dimensional structure of proteins and protein-RNA complexes by means of X-ray crystallography to understand their function at atomic level. Besides the crystal structure analysis, the overexpression, purification and crystallization of proteins is an important aspect of our work. We are currently working on proteins involved in the splicing and modification of RNA and, as well, on proteins required for the nucleo-cytoplasmic transport.

Selected Recent Publications:

Vidovic I, Nottrott S, Hartmuth K, Lührmann R & Ficner R (2000) Crystal structure of the spliceosomal 15.5kD protein bound to a U4 snRNA fragment. Mol Cell 6: 1331-1342

Grimm C, Maser E, Möbus E, Klebe G, Reuter K & Ficner R (2000) The crystal structure of α-hydroxysteroid dehydrogenase/carbonyl reductase from *Comamonas testosteroni* shows a novel oligomerisation pattern within the short chain dehydrogenase/reductase family J Biol Chem 275: 41333-41339

Reuter K, Mofid M R, Marahiel M A & Ficner R (1999) Crystal structure of the surfactin synthetase activating enzyme Sfp: a prototype of the 4'-phosphopantetheinyl transferase superfamily. EMBO J 18: 6823-6831

Reuter K, Nottrott S, Fabrizio P, Lührmann R & Ficner R (1999) Identification, characterization and crystal structure analysis of the human spliceosomal U5 snRNP-specific 15kD protein. J Mol Biol 294: 515-525

Romier C, Reuter K, Suck D & Ficner R (1996) Crystal structure of tRNA-guanine transglycosylase from *Zymononas mobilis*: RNA modification by base exchange. EMBO J 15: 2850-2857

Kurt von Figura

Professor of Biochemistry

M.D., University of Tübingen, 1970.
Appointed 1986 as head of the Department of Biochemistry II in the Center of Biochemistry and Molecular Cell Biology, Georg August University Göttingen.

Address

Dept. Biochemistry II
University of Göttingen
Heinrich-Dueker-
Weg 12

37073 Göttingen
Germany

phone:
+49-551-39 5948
fax:
+49-551-39 5979
e-mail:
kfigura@gwdg.de

Further Information:

http://www.uni-bc.gwdg.de/bio_2/bio_2.htm

Major Research Interests:

The interest of our group in the biogenesis of lysosomes is stimulated by the existence of a spectrum of congenital disorders in man that affect the function of lysosomes. Our work includes the identification of new molecular defects in human congenital disorders. Transgenic mice are generated to study the function of lysosomal proteins and proteins involved in lysosome biogenesis and used as models for human congenital disorders for the study of the pathophysiology and the effectiveness of new therapeutic approaches. A number of studies have focussed on the identification of lysosomal trafficking signals in membrane proteins, and their recognition by the transport machinery. Current projects focus on the regulation of the interaction of cytoplasmic adaptors with the lysosomal transport signals in membrane proteins, the function of several major lysosomal membrane proteins, a novel protein modification that is required for the catalytic activity of sulfatases and deficient in a human disease and the molecular defects and pathophysiology of a new group of human congenital disorders in which the N-glycosylation of glycoproteins is defective.

Selected Recent Publications:

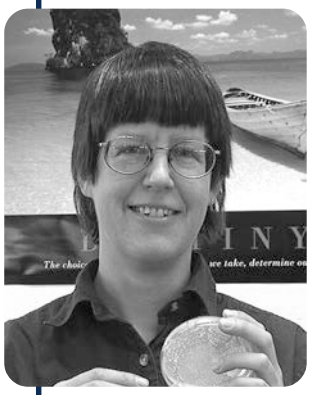
Grimme S, Höning S, von Figura K, Schmidt B (2000) Endocytosis of insulin-like growth factor II by a mini-receptor based on repeat 11 of the mannose 6-phosphate/insulin-like growth factor II receptor. J Biol Chem 275: 33697-33703

Meyer C, Zizioli D, Lausmann S, Eskelinen E L, Hamann J, Saftig P, von Figura K, Schu P (2000) µ1A-adaptin-deficient mice: lethality, loss of AP-1 binding and rerouting of mannose 6-phosphate receptors. EMBO J 19: 2193-2203

Tanaka Y, Guhde G, Suter A, Eskelinen E L, Hartmann D, Lüllmann-Rauch R, Janssen P M L, Blanz J, von Figura K, Saftig P (2000) Accumulation of autophagic vacuoles and cardiomyopathy in LAMP-2-deficient mice. Nature 406: 902-906

Tikkanen R, Obermüller S, Denzer K, Pungitore R, Geuze H J, von Figura K, Höning S (2000) The dileucine motif within the tail of MPR 46 is required for sorting of the receptor in endosomes. Traffic 1: 631-640

Lübke T, Marquardt T, Etzioni A, Hartmann E, von Figura K, Körner C (2001) Complementation cloning identifies CDG-IIc, a new type of congenital disorders of glycosylation, as a GDP-fucose transporter deficiency. Nature Genetics 28: 73-76



Junior Group Leader at the Department of Biochemistry II

Dr. rer. nat. (Ph.D.) 1992, Freie Universität Berlin
Postdoctoral fellow, University of Oregon, Eugene (USA), 1994 - 1998
Junior group leader in the Department of Biochemistry II, Medical Faculty, Universität Göttingen since 8/1998

Major Research Interests:

One of the fundamental questions in cell biology is how proteins are transported between different organelles. This transport requires transport vesicles which bud from the donor and fuse with the target organelle. Our group is interested in the family of SNARE proteins which are required for recognition between transport vesicle and target membrane and for their subsequent fusion. Different SNARE proteins are found on transport vesicle and target membranes and form specific complexes. We focus on SNAREs which are required in transport between the Golgi, endosome and lysosome/vacuole. As these proteins are conserved in evolution we can study similar processes in yeast and mammals.

We use baker's yeast as one model system because of powerful genetic approaches. Mutant genes can be generated easily and defects analyzed. Genes required in the same step can be identified by genetic interactions. Using these techniques we demonstrated that two SNAREs act in several different transport pathways and identified amino acid residues in the SNARE interaction domain which are important for function.

Our second focus are endosomal SNAREs in mouse. We are studying their subcellular distribution using immunofluorescence and are identifying SNARE partners by co-immunoprecipitation. Currently, we are using the yeast two hybrid system to identify new binding proteins for SNAREs. We generated a SNARE knock out mouse and are studying it's phenotype as well as cell lines derived from this mouse.

Address

Biochemie II
Georg-August-
Universität Göttingen
Heinrich-Düker Weg 12

37073 Göttingen

phone:
+49-551-39 5983
fax:
+49-551-39 5979
e-mail:
gfische1@gwdg.de

Further Information:

http://www.
uni-bc.gwdg.de/bio_2/
mollard/fvmweb200.html

Selected Recent Publications:

Kreykenbohm V, Wenzel D, Antonin W, Atlachkine V, Fischer von Mollard G (2002) The SNAREs vti1α and vti1β have different localization and SNARE complex partners. Eur J Cell Biol 81: 273-280

Fischer von Mollard G, Stevens TH (1999) The *Saccharomyces cerevisiae* v-SNARE Vti1p is required for multiple membrane transport pathways to the vacuole. Mol Biol Cell 10: 1719-1732

Antonin W, Riedel D, Fischer von Mollard G (2000) The SNARE Vti1α-β is localized to small synaptic vesicles and participates in a novel SNARE complex. J Neuroscience 20: 5724-5732

Antonin W, Holroyd C, Fasshauer D, Pabst S, Fischer von Mollard G, Jahn R (2000) A SNARE complex mediating fusion of late endosomes defines conserved properties of SNARE structure and function. EMBO J 19: 6453-6464

Dilcher M, Köhler B, Fischer von Mollard G (2001) Genetic interactions with the yeast Q-SNARE VTI1 reveal novel functions for the R-SNARE YKT6. J Biol Chem 276: 34537-34544

Hans-Joachim Fritz

Professor of Molecular Genetics

Diplomchemiker Degree, University of Stuttgart 1969
Dr. rer. nat., University of Stuttgart 1972
Massachusetts Institute of Technology 1974 - 1976
Institute of Genetics, University of Cologne 1977 - 1984
Max-Planck-Institute of Biochemistry, Martinsried 1984 - 1988

Address

Dept. of Molecular Genetics and Preparative Molecular Biology
University of Göttingen
Grisebachstr. 8

37077 Göttingen
Germany

phone:
+49-551-39 3801
fax:
+49-551-39 3805
e-mail:
hjfritz@gwdg.de

Further Information:

http://www.img.bio.uni-goettingen.de/molgen.html

Major Research Interests:

Pathways of Spontaneous Mutation, DNA Repair and the Stability of Genetic Information:
The integrity of genetic information is constantly challenged by thermal noise in a variety of different ways; consequently, numerous mechanisms have evolved to protect the genome by DNA repair. For a number of years, we have been studying various endogenous sources of spontaneous mutation and their respective DNA repair pathways - in most recent years with emphasis on thermophilic microorganisms and hydrolytic deamination of cytosine and 5-methylcytosine residues.

Conformational Stability of Proteins and their Interactions with other Macromolecules and with Ligands:
One of the major impacts genomic research has on molecular biology as a whole is the growing appreciation of protein function as a consequence of a complex web of macromolecular interactions. We have developed and are using genetic tools to detect and to analyze protein/protein and protein/ligand interactions as well as the conformational stability of proteins.

Selected Recent Publications:

Usón I, Bes MT, Sheldrick GM, Schneider TR, Hartsch T, Fritz H-J (1997) X-ray crystallography reveals stringent conservation of protein fold after removal of the only disulfide bridge from a stabilized immunoglobulin variable domain. Folding and Design 2: 357-361

Drotschmann K, Aronshtam A, Fritz H-J, Marinus MG (1998) The *Escherichia coli* MutL protein stimulates binding of Vsr and MutS to heteroduplex DNA. Nucleic Acids Research 26: 948-953

Dziejman M, Kolmar H, Fritz H-J, Mekalanos JJ (1999) ToxR co-operative interactions are not modulated by environmental conditions or periplasmic domain conformation. Molecular Microbiology 31: 305-317

Dieter Gallwitz

Professor, Director at the Max Planck Institute for Biophysical Chemistry

M.D. degree, University of Frankfurt/Main, Germany, (1964)
Postdoctoral Fellow, Dept. Physiological Chemistry, Univ. of Marburg, Germany, (1965 - 1967) and McArdle Laboratory for Cancer Research, Univ. of Wisconsin, Madison, Wisc. USA (1967 - 1969)
Research Assistant and Professor, Dept. Physiological Chemistry, Univ. of Marburg, Germany (1970 - 1986)
Visiting Professor, Dept. Biochemistry and Biophysics, UC San Francisco, USA (1977)
Professor, Director, Dept. Molecular Genetics, Max Planck Institute for Biophysical Chemistry, Göttingen, Germany (1986 - present)

Address

Dept. of Molecular Genetics
Max Planck Institute for Biophysical Chemistry
Am Fassberg 11

37077 Göttingen
Germany

phone:
+49-551-201 1496
fax:
+49-551-201 1718
e-mail:
dgallwi1@gwdg.de

Further Information:

http://www.mpibpc.gwdg.de/abteilungen/150/

Major Research Interests:

Molecular mechanisms governing protein traffic in exo- and endocytosis

We study various aspects of vesicular protein and membrane traffic in eukaryotic cells. The focus of our group is on the role and the mode of action of Ras-like GTPases (Ypt/Rab), key regulators of protein transport that we first discovered in yeast and in mammalian cells some 15 years ago. An important area of interest is the structure-function relationship of proteins that directly interact with these regulators, organelle-specific receptors, GTPase-activating and guanine nucleotide exchange proteins. By using genetic and biochemical approaches, we have also isolated and are studying different components of the complex machineries involved in budding, targeting and fusion of transport vesicles at different cellular organelles in yeast (endoplasmic reticulum, Golgi, lysosome/vacuole).

Selected Recent Publications:

De Antoni A, Schmitzová J, Trepte HH, Gallwitz D, Albert S (2002) Significance of GTP hydrolysis in Ypt1p-regulated ER to Golgi transport revealed by the analysis of two novel Ypt1-GAPs. J Biol Chem: in press

Peng and Gallwitz (2002) Sly1 protein bound to Golgi syntaxin Sed5p allows assembly and contributes to specificity of SNARE fusion complexes. J Cell Biol 157: 645-655

Votsmeier C, Gallwitz D (2001) An acidic sequence of a putative yeast Golgi membrane protein binds COPII and facilitates ER export. EMBO J 20: 6742-6750

Will E, Gallwitz D (2001) Biochemical characterization of Gyp6p, a Ypt/Rab-specific GTPase-activating protein from yeast. J Biol Chem 276: 12135-12139

Rak A, Fedorov R, Alexandrov K, Albert S, Goody RS, Gallwitz D, Scheidig AJ (2000). Crystal structure of the GAP domain of Gyp1p: first insights into interaction with Ypt/Rab proteins. EMBO J 19: 5105-5113

Matern H, Yang X, Andrulis E, Sternglanz R, Trepte HH, Gallwitz D (2000). A novel Golgi membrane protein is part of a GTPase-binding protein complex involved in vesicle targeting. EMBO J 19: 4485-4492

Christiane Gatz

Professor of Plant Molecular Biology

Dr. rer.nat. (1985) at the Institute for Biochemistry, Technical University Darmstadt
Postdoctoral fellow at the University of Wisconsin, Madison, USA
Habilitation in Molecular Genetics at the Freie Universität Berlin in 1992
Professor at the University of Bielefeld (1993 – 1995)
Awards: Alfred Krupp von Bohlen und Halbach-Prize for young University lecturers (1994)
Department General and Developmental Physiology of the Plant of Institute for Plant Sciences, University of Göttingen since 1996

Address

Albrecht-von-Haller Institute for Plant Sciences, Dept. General and Developmental Physiology of the Plant
University of Göttingen
Untere Karspüle 2

37073 Göttingen
Germany

phone:
+49-551-39 7843
fax.:
+49-551-39 7820
e-mail:
cgatz@gwdg.de

Further Information:

http://www.ubpb.gwdg.de/

Major Research Interests:

Plants are constantly exposed to pathogen attack, e.g. to fungi, viruses, bacteria, insects and nematodes. As a result of this selection pressure, plants have evolved efficient defense responses, many of them requiring induction of gene expression. A particularly interesting phenomenon is the systemic acquired resistance (SAR). If a pathogen is locally recognized by the plant, hypersensitive cell death occurs at the site of the infection, which limits spread of the pathogen. Subsequently, the levels of salicylic acid (SA) rise throughout the plant. SA is sufficient and necessary to induce a subset of defense genes. Our group is interested in the molecular mechanisms, how expression of defense genes is activated by SA.

We are focussing on promotors encoding a specific regulatory DNA-sequence, the as-1 element. Presently we have isolated five different cDNAs encoding bZIP transcription factors (TGA factors) binding to the element. A heterodimer of a subset of two different bZIP transcription factors seems to be the activating principle. Ongoing research activities concentrate on the isolation of interacting proteins regulating the activity of this heterodimer.

In addition, we have started a new project, in which transcription factors involved in redox signalling and the synthesis of terpenoids are identified through genome wide arrays encoding the ca. 1000 *Arabidopsis* transcription factors. Experiments are designed to elucidate target genes as well as mechanisms of regulation.

Selected Recent Publications:

Rieping M, Fritz M, Prat S, Gatz C (1994) A dominant negative mutant of PG13 suppresses transcription from a Cauliflower Mosaic Virus 35S truncated promoter in transgenic tobacco plants. Plant Cell 6: 1087-1098

Böhner S, Lenk I, Rieping M, Herold M, Gatz C (1999) Transcriptional activator TGV mediates dexamethasone-inducible and tetracycline-inactivatable gene expression. Plant J 19: 87-95

Niggeweg R, Thurow C, Weigel R, Pfitzner U, Gatz C (2000) Tobacco TGA factors differ with respect to interaction with NPR1, activation potential and DNA-binding properties. Plant Mol Biol 42: 775-788

Niggeweg R, Thurow C, Kegler C, Gatz C (2000) Tobacco transcription factor TGA2.2 is the main component of ASF-1/SARP and is involved in salicyclic acid- and auxin-inducible expression of as-1-containing target promoters. J Biol Chem 275: 19897-19905

Krawczyk D, Thurow C, Niggeweg R, Gatz C
Analysis of the spacing between the two palindromes of activation sequence-1 with respect to binding to different TGA factors and transcriptional activation potential. Nucleic Acids Res 2002 Feb 1; 30(3): 775-81

Gerhard Gottschalk

Professor of Microbiology

Head of the Department of General Microbiology at the Institute of Microbiology and Genetics, University of Göttingen

Address

Dept. General Microbiology
Institute of Microbiology and Genetics
University of Göttingen
Grisebachstr. 8

37077 Göttingen
Germany

phone:
+49-551-39 3781
e-mail:
ggottsc@gwdg.de

Further Information:

http://www.gwdg.de/~genmibio/

Major Research Interests:

I am the coordinator of one of the three competence networks in Germany on genomics of bacteria. Furthermore I am in charge of bacterial and archaeal genome sequencing projects carried out at the Göttingen Genomics Laboratory. Correspondingly, our research now focusses on genomics and transcriptomics of bacteria and archaea. We have completed the genome sequence of *Methanosarcina mazei* and of *Clostridium tetani*. In collaboration with the Max-Planck-Institut of Marine Microbiology at Bremen we are currently sequencing the genome of *Desulfobacterium autotrophicum* and we finished sequencing the pathogenicity islands of an uropathogenic strain of *Escherichia coli* in collaboration with the group of Prof. Hacker at Würzburg. More detailed information can be found on the following websites:
http://www.genomik.uni-goettingen.de and http://www.g2l.bio.uni-goettingen.de

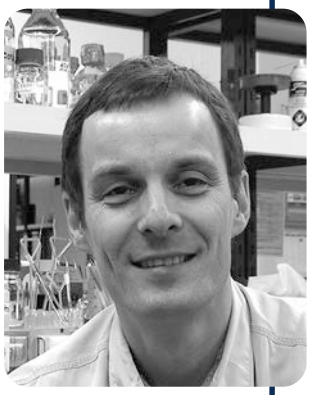
Selected Recent Publications:

Dobrindt U, Blum-Oehler G, Hartsch T, Gottschalk G, Ron E, Fünfstück R, Hacker J (2001) The S-Fimbriae-encoding determinant sfaI is located on the Pathogenicity Island III536 of the uropathogenic *Escherichia coli* strain 536. Infection and Immun 69: 4248-4256

Roeßler M, Pflüger K, Flach H, Lienard T, Gottschalk G, Müller V (2002) Identification of a salt-induced primary transporter for glycine betaine in the methanogen *Methanosarcina mazei* Gö1. Appl Environm Microbiol 68: 2133-2139

Deppenmeier U, Johann A, Hartsch T, Merkl R, Schmitz RA, Martinez-Arias R, Henne A, Wiezer A, Bäumer S, Jacobi C, Brüggemann H, Lienard T, Christmann A, Bömeke M, Steckel S, Bhattacharyya A, Lykidis A, Overbeek R, Klenk HP, Gunsalus R, Fritz HJ, Gottschalk G (2002) The genome of *Methanosarcina mazei*: Evidence for lateral gene transfer between Bacteria and Archaea. J Mol Microbiol Biotechnol 4: 453-461

Christian Griesinger



Professor, Director at the Max Planck Institute for Biophysical Chemistry, Göttingen

Dr. phil. nat. University of Frankfurt (1986, Prof. Dr. H. Kessler))
Postdoctoral Fellow at Lab. for Physical Chemistry, ETH Zürich (1986 - 1989, Prof. Dr. R. R. Ernst)
Full Professor for Organic Chemistry at the University of Frankfurt (1990 - 2000)
Appointed as Director at the Max Planck Institute for Biophysical Chemistry (1998)

Address

Department of NMR Based Structural Biology (Abt. 030), Max Planck Institute for Biophysical Chemistry
Am Faßberg 11

37077 Göttingen
Germany

phone:
+49-551-201 2201
+49-551-201 2200
fax:
+49-551-201 2202
email:
cigr@nmr.mpibpc.mpg.de

Further Information:

http://www.mpibpc.mpg.de/abteilungen/030

Major Research Interests:

Our group focuses on the structure and dynamics of biomolecules and their complexes. We use to this end nuclear magnetic resonance (NMR) spectroscopy as well as X-ray crystallography. We apply solution state and solid state NMR spectroscopy to biomolecules and their complexes in their physiological environment, be it water for cytosolic proteins or lipids for membrane proteins. The methods developments are pursuing the following goals:

Relaxation compensated methods to increase the molecular weight of biomolecules that are amenable for NMR investigations. This is tackled by new NMR pulse techniques, novel schemes for labelling the biomolecules with isotopes and the usage of optimized expression schemes. New NMR derived parameters that allow to define biomolecular structure and dynamics better are derived and applied e.g. to DNA binding proteins, spliceosomal RNA, a bacterial sensor and proteins involved in signal transduction and apoptosis and for the investigation of enzyme mechanisms.

Development of NMR methods to assign and determine the structure of isotopically labeled membrane-proteins and peptides with solid state NMR spectroscopy on oriented samples or using magic angle sample spinning on several systems including a 150 kD membrane-Protein and the complex of a peptide and a G-protein coupled receptor.

Selected Recent Publications:

Reif B, Hennig M, Griesinger C (1997) Direct Measurement of Angles between Bond Vectors in High Resolution NMR. Science 276: 1230-1233

Marino JP, Schwalbe H, Griesinger C (1999) J-coupling restraints for structural refinements of RNA. Acc Chem Res 32: 614-632

Elshorst B, Hennig M, Försterling H, Diener A, Maurer M, Schulte P, Schwalbe H, Griesinger C, Krebs J, Schmid H, Vorherr T, Carafoli E (1999) Unusual Structural Properties of a Complex of Calmodulin with a Binding Peptide of the Ca^{2+}-Pump: A NMR Study. Biochemistry 38: 12330-12332

Bartoschek S, Johannson M, Geierstanger BH, Okun JG, Lancaster CRD, Humpfer E, Yu L, Yu CA, Griesinger C, Brandt U (2001) Three Molecules of Ubiquinone Bind Specifically to Mitochondrial Cytochrome bc1 Complex, J Biol Chem 276: 35231-35234

Peti W, Meiler J, Brüschweiler R, Griesinger C (2002) Model free Analysis of Protein Backbone Motion from Residual Dipolar Couplings. J Am Chem Soc 124: 5822-5833

Vogtherr M, Jacobs DM, Parac TN, Maurer M, Pahl A, Saxena K, Rüterjans H, Griesinger C Fiebig KM (2002) NMR Solution Structure and Dynamics of the Peptidylprolyl cis-trans Isomerase Domain of the Trigger Factor from *Mycoplasma genitalium* Compared to FK506-binding Protein. J Mol Biol 318: 1097-1115

Uwe Groß

Professor of Bacteriology

M.D., University of Hamburg 1987
Postdoctoral fellow, UC Los Angeles, California, 1987 - 1989
Professor of Medical Parasitology, University of Würzburg 1998/1999
Appointed 1999 as head of the Department of Bacteriology, University of Göttingen

Address

Department of Bacteriology
Medical Faculty of the University of Göttingen
Kreuzbergring 57

37075 Göttingen
Germany

phone:
+49-551-39 5801/5806
fax:
+49-551-39 5861
e-mail:
ugross@gwdg.de

Further Information:

http://www.gwdg.de/~sekbak02/

Major Research Interests:

The protozoan parasite *Toxoplasma gondii* usually causes asymptomatic infections in immunocompetent adults leading to lifelong persistence especially in the brain and in muscle tissue. Life-threatening reactivation of such infection might occur in immunocompromised individuals (i. e. patients suffering from AIDS). This parasite serves as a model organism for studying evasion mechanisms of intracellular pathogens.

We are interested in the cross-talk between the parasite and its host cell on a molecular level. We could demonstrate that the parasite (i) modulates the host cell capacity for MHC-restricted antigen presentation and (ii) inhibits apoptosis of the infected cell. Both mechanisms allow intracellular persistence. Vice versa, the host's immune response determines the fate of the parasite by direct interference with differentiation processes of *Toxoplasma gondii*. The precise molecular events for these strategies of intense interplay between both partners are currently under our investigation.

Selected Recent Publications:

Lüder, CGK, Groß U, Lopes MF (2001) Intracellular protozoan parasites and apoptosis: diverse strategies to modulate parasite-host interactions. Trends Parasitol 17: 480-486

Holpert M, Lüder CGK, Groß U, Bohne W (2001) Bradyzoite-specific expression of a P-type ATPase in *Toxoplasma gondii*. Mol Biochem Parasitol 112: 293-296

Lüder CGK, Walter W, Beuerle B, Maeurer MJ, Groß U (2001) *Toxoplasma gondii* down-regulates MHC class II gene expression and antigen presentation by murine macrophages via interference with nuclear translocation of STAT1 alpha. Eur J Immunol 31: 1475-1484

Gail M, Groß U, Bohne W (2001) Transcriptional profile of *Toxoplasma gondii*-infected human fibroblasts as revealed by gene-array hybridization. Mol Genet Genomics 265: 905-912

Goebel S, Groß U, Lüder CGK (2001) Inhibition of host cell apoptosis by *Toxoplasma gondii* is accompanied by reduced activation of the caspase cascade and alterations of poly(ADP-ribose) polymerase expression. J Cell Science 114: 3495-3505

Lüder CGK, Lang C, Giraldo-Velasquez M, Algner M, Gerdes J, Groß U (2002) *Toxoplasma gondii* inhibits MHC class II expression in neural antigen-presenting cells by down-regulating the class II transactivator CIITA. J Neuroimmunol: in press

Eberhard Günther

Professor of Immunogenetics

Dr. med. University of Freiburg/Br. 1968
Physician at the University Hospital in Freiburg and other hospitals
Postdoctoral fellow and then scientific assistant at the Max Planck Institute for Immunobiology in Freiburg/Br.
Appointed as head of the Department of Immunogenetics, University of Göttingen, 1982

Address

Department of Immunogenetics
Medical Faculty, University of Göttingen
Heinrich-Düker-Weg 12

37073 Göttingen
Germany

phone:
+49-551-39 5850
fax:
+49-551-39 5852
e-mail:
eguenth@gwdg.de

Further information:

http://www.immungenetik.uni-goettingen.de

Major Research Interests:

Our main research interest are function, genetics, genomics and evolution of the major histocompatibility complex. This group of genes has first been described because of its major role in determining graft rejection. It then turned out to control antigen-specific immune responsiveness, innate immune reactions and susceptibility to various diseases. Recently the complete nucleotide sequence of the human MHC, the HLA complex, has become available and revealed the presence of more than 120 expressed genes in this region of about 4 Mb. We are studying the MHC of the rat and of certain non-human primates. The rat is of particular interest because it provides several models of MHC-controlled diseases. We have physically mapped the complete rat MHC, and are now studying the expression of the various genes from different MHC genotypes in normal and diseased tissues. The function of certain MHC linked genes, Sacm2l and Hsp70, is analysed in greater detail. A particular focus is the role of Hsp70 genes during the immune response.

Selected Recent Publications:

Walter L, Günther E (1998) Identification of a novel highly conserved gene in the centromeric part of the major histocompatibility complex. Genomics 52: 298-304

Dressel R, Lübbers M, Walter L, Herr W, Günther E (1999) Enhanced susceptibility to cytotoxic T lymphocytes without increase of class I antigen expression after conditional overexpression of heat shock protein 70 in target cells. Eur J Immunol 29: 3925-3935

Walter L, Günther E (2000) Physical mapping and evolution of the centromeric class I gene containing region of the rat MHC. Immunogenetics 51: 829-837

Dressel R, Elsner L, Quentin T, Walter L, Günther E (2000) Heat shock protein 70 is able to prevent heat shock-induced resistance of target cells to CTL. J Immunol 164: 2362-2371

Seo JW, Walter L, Günther E (2001) Genomic analysis of MIC genes in rhesus macaques. Tissue Antigens 58: 159-165

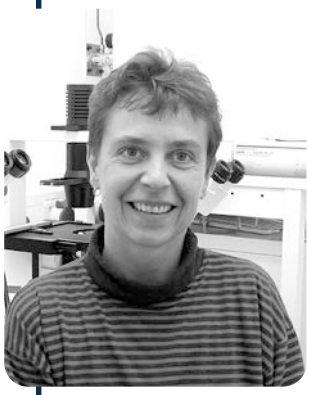
Ioannidu S, Walter L, Dressel R, Günther E (2001) Physical map and expression profile of genes of the telomeric class I region of the rat MHC. J Immunol 166: 3957-3965

Walter L, Stark S, Helou K, Flugge P, Levan G, Günther E (2002) Identification, characterization and cytogenetic mapping of a yeast Vps54 homolog in rat and mouse. Gene 285: 213-220

Heidi Hahn

Professor of Molecular Developmental Genetics

Dr. med., University of Würzburg, 1992
Postdoctoral Fellow, National Institutes of Health, Bethesda, Maryland, USA (1993 -1998)
Junior Group Leader (BioFuture), Technical University of Munich (1999 - 2000)
Professor of Molecular Developmental Genetics, University of Göttingen since 2001



Address

Institute of Human Genetics
University of Göttingen
Heinrich-Düker-Weg 12

37073 Göttingen
Germany

phone:
+49-551-39 14010
fax:
+49-551-39 9303
e-mail: hhahn@gwdg.de

Further information:

http://www.humangenetik.gwdg.de

Major Research Interests:

Hedgehog (Hh) signaling molecules play a key role in the patterning of numerous tissues during development. Hh signaling is initiated by binding of Hh to its receptor Patched (Ptch). This binding suspends the inhibitory action of Ptch on its signaling partner Smo. Smo is activated and the signaling pathway is turned on. The pathway can also be activated by mutational inactivation of Ptch or by activating mutations in either Hh or Smo and we were able to show that this pathological activation results in developmental defects and in tumor formation in humans and mice.
The goal of our group is to characterize the role of the Hh signaling pathway in the diseased state by identification of its cellular targets and by characterization of its interaction with other signaling pathways. This is achieved by the application of modern genetic techniques (e.g. microarray analysis) to human and murine tumors and cell lines with mutations in one or more components of the pathway. This approach should help to develop molecular diagnostics for Hh-related malignancies as well as to identify targets for therapeutic interventions.

Selected Recent Publications:

Hahn H, Wojnowski L, Specht K, Kappler R, Calzada-Wack J, Potter D; Zimmer AM, Müller U, Samson E, Quintinilla-Martinez, Zimmer A (2000) Patched target IGF2 is indispensable for the formation of medulloblastoma and rhabdomyosarcoma. JBC 275 (37): 28341-4

Calzada-Wack J, Kappler R, Schnitzbauer U, Richter T, Nathrath M, Rosemann M, Wagner SN, Hein R, Hahn H (2002) Unbalanced overexpression of the mutant allele in murine Patched mutants. Carcinogenesis 23(5):727-734

Calzada-Wack J, Schnitzbauer U, Walch A, Wurster KH, Kappler R, Nathrath M, Hahn H (2002) Analysis of the PTCH coding region in human rhabdomyosarcoma. Hum Mutat 20(3):233-4

Pazzaglia S, Mancuso M, Atkinson M, Tanori M, Rebessi S, Di Majo V, Covelli V, Hahn H, Saran A (2002) High Incidence of Medulloblastoma Following X Ray-Irradiation of Newborn ptch Heterozygous Mice. Oncogene 21(49):7580-4

Kappler R, Calzada-Wack J, Schnitzbauer U, Piontek G, Graedler F, Adamski J, Heinzmann U, Schlegel J, Hemmerlein B, Quintanilla-Martinez L, Hahn H. Molecular characterisation of Patched-associated rhabdomyosarcoma. J of Pathology, in press

Volker Haucke

Address

Zentrum für Biochemie
& Molekulare
Zellbiologie
Universität Göttingen
Humboldtallee 23

37073 Göttingen
Germany

phone:
+49-551-39 9854
fax:
+49-551-39 12198
e-mail:
vhaucke@gwdg.de

Further Information:

http://www.uni-bc.gwdg.de/bio_2/HAUCKE/start.htm

Junior Group Leader at the Centre for Biochemistry and Molecular Cell Biology, University of Göttingen

Dr. phil. (Ph.D.) 1997, University of Basel, Switzerland
Postdoctoral Fellow at Yale University School of Medicine, New Haven, CT, USA 1997 - 2000
Appointed as leader of an independent junior research group at the Zentrum für Biochemie & Molekulare Zellbiologie 2000

Major Research Interests:

Our laboratory is interested in the molecular mechanisms of endocytosis and synaptic vesicle formation in neurons. Synaptic vesicles are small membrane-bounded organelles that store and secrete non-peptide neurotransmitters. Following exocytosis and the concomitant insertion of synaptic vesicle proteins and lipids into the presynaptic plasmalemma synaptic vesicles are retrieved by clathrin-mediated endocytosis. During this process the clathrin adaptor complex AP-2 is recruited to the presynaptic plasmamembrane along with a growing number of accessory proteins which assist in the formation and maturation of clathrin-coated pits. These coated pits eventually pinch off in a dynamin-dependent reaction giving rise to free clathrin-coated vesicles which become refilled with neurotransmitter and finally shed their coat resulting in the regeneration of synaptic vesicles.
We are interested in how the endocytic process is regulated at the molecular level both by proteins and lipids and how synaptic vesicles are formed in differentiating neuronal precursor cells. We have identified hStnB/ stonin 2, a novel component of the endocytic machinery which we hypothesize to negatively regulate the interaction of clathrin/AP-2 with the membrane. How this protein precisely acts at the synapse is currently under intense investigation by the combined use of molecular biological, biochemical, and physiological techniques. Other projects are directed towards dissecting the role of phosphoinositides, a certain class of membrane lipids which interact with several components of the endocytic machinery, in clathrin-mediated endocytosis at the synapse. Finally, we are trying to understand the biogenesis pathway of synaptic vesicles during neuronal differentiation by establishing an *in vitro* system that allows the formation of neurons from differentiating non-neuronal precursor cells.

Selected Recent Publications:

Rohde G, Wenzel D, Haucke V (2002) A phosphatidylinositol (4,5)-bisphosphate binding site within µ2-adaptin is required for clathrin-mediated endocytosis. J Cell Biol 158: 209-214

Takei K, Haucke V (2001) Clathrin-mediated endocytosis: membrane factors pull the trigger. Trends Cell Biol 11: 385-391

Walther K, Krauss M, Diril MK, Lemke S, Ricotta D, Höning S, Kaiser S, Haucke V (2001) Human stoned B interacts with AP-2 and synaptotagmin and facilitates clathrin-coated vesicle uncoating. EMBO Rep 2: 634-640

Galli T, Haucke V (2001) Cycling of synaptic vesicles: How far? How fast! Science´s STKE: http://www.stke.org/cgi/content/full/OC_sigtrans;2001/88/re1

Haucke V (2000) Dissecting the ins and outs of excitement: glutamate receptors on the move. Nature Neurosci 3: 1230-1232

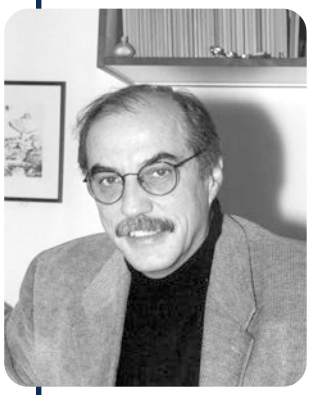
Haucke V, Wenk MR, Chapman ER, Farsad K, Camilli P de (2000) Dual interaction of synaptotagmin with µ2 and a-adaptin facilitates clathrin coated pit nucleation. EMBO J 19: 6011-6019

Haucke V, Camilli P de (1999) AP-2 recruitment to synaptotagmin stimulated by tyrosine-based endocytic motifs. Science 285: 1268-1271

Takei K, Slepnev VI, Haucke V, Camilli P de (1999) Functional partnership between amphiphysin and dynamin in clathrin-mediated endocytosis. Nature Cell Biol 1: 33-39

Takei K, Haucke V, Slepnev VI, Farsad K, Salazar M, Chen H, Camilli P de (1998) Generation of coated intermediates of clathrin-mediated endocytosis on protein-free liposomes. Cell 94: 131-141

Herbert Jäckle



Professor, Director at the Max Planck Institute for Biophysical Chemistry

Faculty member at the EMBL, Heidelberg (1980 - 1982)
Head of the group (associate professor), Max Planck Institute for Developmental Biology, Tübingen (1982 - 1988)
Professor and Chairman, Dept. of Genetics and Microbiology, Univ. of Munich (1988 - 1991)

Address

Department of Molecular Developmental Biology, Max-Planck-Institute for Biophysical Chemistry
Am Fassberg 11

37077 Göttingen
Germany

phone:
+49-551-201 1482
fax:
+49-551-201 1755
e-mail:
hjaeckl@gwdg.de

Further Information:

http://www.mpibpc.gwdg.de/abteilungen/170/

Major Research Interests:

How is the embryo generated from a single cell, the egg? We address this question by using the *Drosophila* embryo as an experimental system, applying the combined tools of classical embryology, genetics, molecular biology and biochemistry. We have focussed our efforts to isolate and characterize the factors underlying early pattern formation along the anterior-posterior axis of the embryo. We sought to unravel their mode of action und the molecular mechanism in which they function.
Many of the factors required to establish the basic body plan are also necesssary for organ formation, a process which involves local inductive interactions between groups of cells and/or epithelial cell layers. We have started to identify the genetic components and regulatory circuitries involved in organogenesis as well as in neural conductivity and function. We also use the fly to identify the components of novel biochemical pathways and cellular key components that control and maintain homeostasis and energy balance, and we initiated a gene discovery program to systematically characterize the function of genes on the *Drosophila* X-chromosome.

Selected Recent Publications:

Schöck F, Reischl J, Wimmer E, H. Taubert, Purnell B.A. and Jäckle H. 2000. Phenotypic supression of *empty spiracles* is prevented by buttonhead. Nature 405: 351-354

Piepenburg O, Vorbrüggen G, and Jäckle.2000. *Drosophila* segment borders result from unilateral repression of hedgehog activity by Wingless signaling. Molecular Cell 6: 203-209

Niessing, D., F. Sprenger, W. Driever, H. Taubert, H. Jäckle and R. Rivera-Pomar (2000) Homeodomain position 54 specifies transcriptional versus translational control by Bicoid. Mol. Cell 5: 595-401

Linder, B., N. Gerlach and H. Jäckle. 2001. The *Drosophila* homolog of the human AF10 is a HP1-interacting suppressor of position effect variegation. EMBO reports 2: 211-216

Benos, P.V. *et al.* 2001. From first base: The sequence of the tip of the *X*-chromosome of *Drosophila melanogaster*, a comparison of two sequencing strategies. Genome Research 11: 710-730

Reinhard Jahn

Professor, Director at the Max Planck Institute for Biophysical Chemistry

Dr. rer. nat. (Ph.D.) 1981, University of Göttingen
Professor (since 1997 Adjunct Professor) of Pharmacology, Yale University School of Medicine
Appointed as Director at the Max-Planck-Institute for Biophysical Chemistry 1997

Address

Department of Neurobiology
Max Planck Institute for Biophysical Chemistry
Am Fassberg 11

37077 Göttingen
Germany

phone:
+49-551-201 1635
fax:
+49-551-201 1639
e-mail:
rjahn@gwdg.de

Further Information:

http://www.mpibpc.gwdg.de/abteilungen/190/

Major Research Interests:

Our group is interested in the mechanisms of membrane fusion, with the main emphasis on regulated exocytosis in neurons. Since recent years it is known that intracellular membrane fusion events are mediated by a set of conserved membrane proteins, termed SNAREs. For fusion to occur, complementary sets of SNAREs need to be present on both of the fusing membranes. The neuronal SNAREs are among the best characterized. They are the targets of the toxins responsible for botulism and tetanus . To understand how these proteins make membranes fuse, we studied their properties in detail using biochemical and biophysical approaches. We found that they assemble into a tight complex which ties the membrane closely together and thus probably initiates bilayer mixing.

In our current approaches, we study membrane fusion at the level of isolated proteins as well as in semi-intact and intact cells. Thus, we are investigating conformational changes of the SNARE proteins before and during fusion. Furthermore, we use reconstitution of membrane fusion in cell-free assays and in proteoliposomes. Other projects of the group include the study of neurotransmitter uptake by synaptic vesicles and the function of Rab-GTPases in neuronal exocytosis.

Selected Recent Publications:

Takamori S, Rhee JS, Rosenmund C, Jahn R (2000) Identification of a vesicular glutamate transporter that defines a glutamatergic phenotype in neurons. Nature 407: 189-194

Lang T, Bruns D, Wenzel D, Riedel D, Holroyd P, Thiele C, Jahn R (2001) SNAREs are concentrated in cholesterol-dependent clusters that define docking and fusion sites for exocytosis. EMBO J 20: 2202-2213

Antonin W, Fasshauer D, Becker S, Jahn R, Schneider TR (2002) Crystal structure of the endosomal SNARE complex reveals common structural principles of all SNAREs. Nature Struct Biol 9: 107-111

Fasshauer D, Antonin W, Subramaniam V, Jahn R (2002) SNARE assembly and disassembly exhibit a pronounced hysteresis (2002) Nature Struct Biol 9: 144-151

Jahn R, Grubmüller H (2002) Membrane fusion. Curr Opinion in Cell Biology 14: 488-495

Lang T, Margittai M, Hölzler, H, Jahn R (2002) SNAREs in native plasma membranes are active and readily form core complexes with endogenous and exogenous SNAREs. J Cell Biol 158: 751-760

Michael Kessel

Professor of Molecular Biology

Until 1981 Biochemical Institute, Kiel University
1981 - 1983 National Cancer Institute, NIH, Bethesda,USA
1983 - 1986 Center for Molecular Biology (ZMBH), Heidelberg University
Since 1987 Max Planck Institute for Biophysical Chemistry, Goettingen

Address

Max Planck Institute for
Biophysical Chemistry
Am Fassberg 11

37077 Göttingen
Germany

phone:
+49-551-201 1560
fax:
+49-551-201 1504
e-mail:
mkessel1@gwdg.de

Further Information:
http://www.
mpibpc.gwdg.de/
abteilungen/160

Major Research Interests:

The group studies patterning processes in early chick and mouse embryos, in particular
during gastrula and neurula stages. The primitive embryonic ectoderm, the epiblast, gives
rise to the three germ layers, the definitive ecto-, endo- and mesoderm, which interact during the transition from pattern formation to organogenesis. We study these processes by applying molecular and embryological techniques, including expression analysis, transplantation in embryo culture, large scale screening of expressed sequence tags, *in vivo* gene transfer by electroporation, and gene knock-out technology. At present we follow four major lines of interest

1. We study neural crest formation at the interphase between epidermal and neural ectoderm.
2. We analyze processes involved in the induction of the forebrain anlage by signals from the anterior mesendoderm.
3. We investigate patterning processes in the early, prospective liver endoderm, and its interaction with prospective heart mesoderm.
4. We study patterning processes at the outflow tract of the heart, where cardiac mesoderm comes into contact with migrating neural crest cells.

Selected Recent Publications:

Pera E, Stein S and Kessel M (1999) Ectodermal patterning in the avian embryo: Epidermis versus neural plate. Development 126: 63-73

Knoetgen H, Viebahn C and Kessel M (1999) Head induction in the chick by primitive endoderm of mammalian, but not avian origin. Development 126: 815-125

Boettger T, Wittler L and Kessel M (1999) FGF8 functions in the specification of the right body side. Current Biology 9: 277-280

Roeser T, Stein S and Kessel M (1999) Nuclear localization of b-catenin in normal and LiCl exposed chick embryos. Development 126: 2955-2965

Knoetgen H, Teichmann U, Wittler L, Viehbahn C and Kessel M (2000) Anterior neural induction by nodes from rabbits and mice. Developmental Biology 225: 370-380

Willhart Knepel

Professor of Molecular Pharmacology

Dr. rer. nat., University of Freiburg i. Br., Germany, 1980
Habilitation, University of Freiburg i. Br., Germany, 1985
Research Fellow, Laboratory of Molecular Endocrinology, Harvard Medical School, Boston, MA, USA, 1987 - 1990
Joined Medical Faculty of the University of Göttingen 1991

Address

Dept. Molecular Pharmacology
Medical Faculty of the University of Göttingen
Robert-Koch-Str. 40

37075 Göttingen
Germany

phone:
+49-551-39 5787
fax:
+49-551-39 9652
e-mail:
wknepel@med.uni-goettingen.de

Further Information:

http://regulus.PharBP.med.Uni-Goettingen.DE/internet.htm

Major Research Interests:

The main interest of the laboratory is in the molecular mechanisms of gene transcription. Transient transfections of reporter fusion genes, transgenic mice, and other molecular biology techniques are used to study the mechanisms of cell-specific and signal-induced gene transcription, and how drugs interfere with these mechanisms to produce pharmacological effects. 1. The pancreatic islet hormone glucagon is a biological antagonist of insulin and regulates blood glucose levels. Enhanced synthesis and secretion of glucagon contributes to increased hepatic glucose output and hyperglycemia in diabetes mellitus. We study the mechanisms which activate the glucagon gene in pancreatic islet a cells as well as signaling pathways to the glucagon gene induced by cAMP, membrane depolarization, and insulin. 2. We study the regulation of glucagon gene transcription by the new group of oral antidiabetic drugs, the thiazolidinediones. These so-called 'insulin sensitizers' may improve insulin action in part through an effect on glucagon. 3. The ubiquitously expressed, cAMP- and calcium-regulated transcription factor CREB is affected by several classes of drugs. We study how the immunosuppressive drugs cyclosporin A and FK506 (tacrolimus) inhibit CREB-mediated transcription. This effect may underlie their pharmacological effects, both desired and undesired. Using transgenic mice and an animal model of depression, we also study whether treatment with antidepressants alters CREB-mediated transcription in order to better understand the molecular mechansims of action of antidepressant drugs.

Selected Recent Publications:

Beimesche S, Neubauer A, Herzig S, Grzeskowiak R, Diedrich T, Cierny I, Scholz D, Alejel T, Knepel W (1999) Tissue-specific transcriptional activity of a pancreatic islet cell-specific enhancer sequence/Pax6-binding site determined in normal adult tissues *in vivo* using transgenic mice. Mol Endocrinol 13: 718-728

Siemann G, Blume R, Grapentin D, Oetjen E, Schwaninger M, Knepel W (1999) Inhibition of cyclic AMP response element-binding protein/cyclic AMP response element-mediated transcription by the immunosuppressive drugs cyclosporin A and FK506 depends on the promoter context. Mol Pharmacol 55: 1094-1100

Herzig S, Füzesi L, Knepel W (2000) Heterodimeric Pbx-Prep1 homeodomain protein binding to the glucagon gene restricting transcription in a cell type-dependent manner. J Biol Chem 275: 27989-27999

Grzeskowiak R, Amin J, Oetjen E, Knepel W (2000) Insulin responsiveness of the glucagon gene conferred by interactions between proximal promoter and more distal enhancer-like elements involving the paired-domain transcription factor Pax6. J Biol Chem 275: 30037-30045

Schinner S, Dellas C, Schröder M, Heinlein C, Chang C, Fischer J, Knepel W (2002) Repression of glucagon gene transcription by peroxisome proliferator-activated receptor γ through inhibition of Pax6 transcriptional activity. J Biol Chem 277: 1941-1948

Kerstin Krieglstein

Professor of Anatomy/Neuroanatomy

Dr. rer. nat., University of Gießen, Germany, 1990
Postdoctoral fellow, University of California, Irvine, 1990 - 1992
Professor of Anatomy, University of Saarland, 1999 - 2001
Appointed 2001 as head of the Department of Anatomy/Neuroanatomy, University of Göttingen

Address

Zentrum Anatomie,
Abt. Anatomie mit Schwerpunkt Neuroanatomie,
Universität Göttingen
Kreuzbergring 36

37075 Göttingen
Germany

phone:
+49-551-39 7051/7052
fax:
+49-551-39 14016
email:
kkriegl@gwdg.de

Major Research Interests:

The nervous system is a complex network of billions of neurons building appropriate connections and transmitting the information required. Although the nervous system has a lifelong synaptic plasticity, it is essentially built just once with very little regenerative capacity, meaning that neurons have to survive and function for lifetime. Loss of neurons will eventually lead to functional impairments such as those found in Alzheimer's, Parkinson's or ALS patients.
We are interested in the understanding of the regulation of neuronal survival and death. Recent advancements in the field have provided clear evidence that neuronal survival is caused by synergistic actions of neurotrophic factors along with other cytokines most prominently from the TGF-ß superfamily. Synergisms of TGF-ß in combination with neurotrophic factors, like GDNF or NGF, will be studied to establish their role in nervous system development and their therapeutic potential in brain repair. Specifically, we shall investigate such synergisms by utilising mouse mutants to understand the developmental role and by emplying genomic screens to identify new target genes for the establishment of new therapeutic strategies for human neurodegenerative disorders. Furthermore, as growth factors function not only in the decision of neuron survival or death, we shall explore their morphogenetic and differentiation capacities employing the powerful potential of embryonic (ES) and CNS stem cells.

Selected Recent Publications:

Krieglstein K, Henheik P, Farkas L, Jaszai J, Galter D, Krohn K and Unsicker K (1998) GDNF requires TGF-ß for establishing its neurotrophic activity. J Neurosci 18: 9822-9834

Schober A, Hertel R, Arumäe U, Farkas L, Jaszai J, Krieglstein K, Saarma M, Unsicker K (1999) GDNF rescues target-deprived spinal cord neurons but requires TGF-ß as co-factor *in vivo*. J Neurosci 19: 2008-2015

Krieglstein K, Richter S, Farkas L, Schuster N, Dünker N, Oppenheim R W, Unsicker K (2000) Reduction of endogenous transforming growth factor beta prevents ontogenetic neuron death. Nature Neuroscience 3: 1085-1091

Strelau J, Sullivan A, Böttner M, Lingor P, Falkenstein E, Suter- Crazzolara C, Galter D, Jaszai J, Krieglstein K, Unsicker K (2000) GDF-15/MIC-1 is a novel trophic factor for midbrain dopaminergic neurons *in vivo.* J Neurosci 20: 8597-8603

Dünker N, Schuster N, Krieglstein K (2001) Transforming Growth Factor Beta Modulates Programmed Cell Death in the Retina of the Developing Chick Embryo. Development 128: 1933-1942

Wolfgang Liebl

Professor of Microbiology

1984 Diploma (Biology), Technische Universität München
1986 Ph.D. (Dr. rer. nat.), Technische Universität München
1986 - 1988 Postdoctoral Fellow, Massachusetts Institute of Technology, Cambridge, MA, USA
1997 Habilitation (Microbiology), Technische Universität München
Since 1997 Professor of Microbiology (Applied Microbiology), Georg-August-Universität, Göttingen

Address

Institute for Microbiology and Genetics
Georg-August-Universität
Grisebachstr. 8

37077 Göttingen
Germany

phone:
+49-551-39 3795
fax:
+49-551-39 4897
e-mail:
wliebl@gwdg.de

Further Information:

http://www.gwdg.de/~wliebl/

Major Research Interests:

One of the main interests of our group is the analysis of polysaccharide and oligosaccharide breakdown and utilization by microorganisms. In the last few years, we have focussed our work on xylan and starch degrading enzyme systems from hyperthermophiles, i. e. organisms that grow optimally at 80°C or higher. These organisms represent very deep branches within the prokaryotic lineages of the phylogenetic tree of organisms. We have detected and analysed unusual glycosyl hydrolases and transferases from *Thermotoga maritima*, the model organism of hyperthermophilic bacteria. Current projects are aimed at the elucidation of the biochemical properties, the molecular structure and catalytic mechanism, the function(s) of non-catalytic domains, and the cellular localization of selected enzymes of *T. maritima* and other extremely thermophilic organisms.
Another group of bacteria studied in the laboratory are the Gram-positive bacteria with a high G+C content. We employ molecular biological techniques to study and modify physiological traits of amino acid-producing corynebacteria and micrococci.
Also, the group is interested in the molecular biology of symbiotic rhizobia, with focus on the investigation of biotin- and stationary phase-regulated processes in *Sinorhizobium meliloti* and *Rhizobium* NGR234 (Dr. W. Streit). Finally, we are engaged in the characterization of microbial biotin biosynthesis genes isolated from environmental DNA libraries.

Selected Recent Publications:

Meissner K, Wassenberg D, Liebl W (2000) The "thermostabilising domain" of the modular xylanase XynA of the hyperthermophilic bacterium *Thermotoga maritima* represents a novel xylan-binding domain. Mol Microbiol 36: 898-912

Entcheva P, Liebl W, Johann A, Hartsch T, Streit W (2001) Direct cloning from enrichment cultures, a reliable strategy for isolation of complete operons and genes from microbial consortia. Appl Environ Microbiol 67: 89-99

Sterner R, Liebl W (2001) Thermophilic adaptation of proteins. Crit Rev Biochem Mol Biol 36: 39-106

Raasch C, Armbrecht M, Streit W, Höcker B, Sträter N, Liebl W (2002) Identification of residues important for NAD^+-binding by the *Thermotoga maritima* α-glucosidase AglA, a member of glycoside hydrolase family 4. FEBS Lett 517: 267-271

Roujeinikova A, Raasch C, Sedelnikova S, Liebl W, Rice DW (2002) The crystal structure of *Thermotoga maritima* 4-α-glucanotransferase and its acarbose complex: implications for substrate specificity and catalysis. J Mol Biol: in press

Reinhard Lührmann

Professor, Director at the Max Planck Institute for Biophysical Chemistry

Dr. rer. nat (Ph. D.), University of Münster (1975)
Research group leader, Max Planck Institute for Molecular Genetics, Berlin (1981 - 1988)
Professor of Biochemistry and Molecular Biology at the University of Marburg (1988 - 1999)
Director, Dept. of Cellular Biochemistry, Max Planck Institute for Biophysical Chemistry, Göttingen (since 1999)
Honorary Professor at the University of Marburg (since 2000)

Major Research Interests:

Processing and Transport of RNA

Splicing of nuclear pre-mRNA is an essential and regulated step of gene expression, which is catalyzed by a large multi-component molecular machine termed the spliceosome. Spliceosomes consist of the small nuclear ribonucleoproteins (snRNPs) U1, U2, U4/U6 and U5 and numerous non-snRNP proteins. The spliceosome is a dynamic molecular machine which forms anew onto each pre-mRNA intron. We are investigating the structure and function of the spliceosomal UsnRNPs and the assembly of the splicing machinery. We have purified the UsnRNPs from both human (HeLa) cells and the yeast *S. cerevisiae* and have characterized their protein components. The snRNPs contain more than 50 distinct proteins, most of which are evolutionarily highly conserved. We are now analyzing the function of the snRNP proteins, as well as non-snRNP splicing factors, in the recognition and functional pairing of the splice sites during spliceosome formation, and in splicing catalysis. As multiple snRNA-snRNA and snRNA-pre-mRNA interactions are formed and undergo dramatic conformational changes during splicing, we are particularly interested in understanding the role of snRNP proteins in the remodeling of the spliceosomal RNA network. The functional studies are carried out *in vitro* in HeLa cell, nuclear splicing extracts using biochemical methods, as well as *in vivo* employing yeast molecular genetic techniques. We are also aiming to reconstitute the spliceosome, at various stages of its assembly, from purified or reconstituted snRNPs and non-snRNP splicing factors.
In addition, we are investigating the ultrastructure of spliceosomal complexes using biochemical and structural biology techniques. High resolution cryo-electron microscopy is being employed to understand the 3D architecture of purified UsnRNPs and spliceosomes at defined functional stages. X-ray crystallography is being used to investigate the atomic structure of smaller spliceosomal RNA-protein and protein-protein complexes. The long-term objectives are to understand the chemical basis of pre-mRNA splicing and RNA-protein interactions in the spliceosome.
A third interest of my group is related to the cell biology of the splicing machinery. The biosynthesis of snRNPs occurs in both nuclear and cytoplasmic compartments and therefore nucleo-cytoplasmic transport plays an important role in this process. We are studying the cytoplasmic assembly of snRNPs and the mechanism of nuclear import of snRNPs using biochemical, microinjection, as well as real time light microscopy techniques. Moreover, we would like to understand the structural requirements for the intranuclear targeting of UsnRNPs and other splicing factors to certain nuclear structures termed "speckles" and "coiled bodies".

Address

Max Planck Institute for Biophysical Chemistry,
Dept. Cellular Biochemistry
Am Fassberg 11

37077 Göttingen
Germany

phone:
+49-551-201 1407
fax:
+49-551-201 1197
e-mail:
reinhard.luehrmann@mpi-bpc.mpg.de

Further Information:

http://www.mpibpc.gwdg.de/abteilungen/100/

Selected Recent Publications:

Huber J, Cronshagen U, Kadokura M, Marshallsay C, Wada T, Sekine M and Lührmann R (1998) Snurportin1, an m3G-cap-specific nuclear import receptor with a novel domain structure. EMBO J 17: 4114-4126

Will C L, Schneider C, Reed R and Lührmann R (1999) Identification of both shared and distinct proteins in the major and minor spliceosomes. Science 284: 2003-2005

Watkins N J, Segault V, Carpentier B, Nottrott S, Fabrizio P, Bachi A, Wilm M, Rosbash M, Branlant C and Lührmann R (2000)A common core RNP structure shared between the small nucleolar box C/D RNPs and the spliceosomal U4 snRNP. Cell 103: 457-466

Stark H, Dube P, Lührmann R and Kastner B (2001) The 3-D arrangement for RNA and Proteins in the spliceosomal U1 snRNP. Nature 409: 539-542

Vidovic I, Nottrott S, Hartmuth K, Lührmann R and Ficner R (2001) Crystal structure of the spliceosomal 15.5kD protein bound to a U4 snRNA fragment. Mol Cell 6: 1331-1342

Will C L and Lührmann R (2001) Spliceosomal U snRNP biogenesis, structure and function. Current Op in Cell Biol 13: 290-301

Will C L and Lührmann R (2001) RNP remodeling with DExH/D Boxes. Science 291: 1916-1917

Ahmed Mansouri

Address

AG Molekulare Zelldifferenzierung
MPI für Biophysikalische Chemie
Am Fassberg 11

37077 Göttingen
Germany

phone:
+49-551-201 1709
fax:
+49-551-201 1504
e-mail:
amansou@gwdg.de

Molecular Developmental Genetics

Diploma (Chemistry), Technical University, Braunschweig (Germany) 1975
Dr. rer. nat . Chemical Technology Institute, Technical University, Braunschweig (Germany), 1978
Postdoc at the Institute of Human Genetics in Göttingen (1982 - 1986)
Postdoc at the Miescher Institute in Tübingen (MPI) and at the Max Planck Institute of Immunbiology in Freiburg (Germany) (1986 - 1989)
Since 1989 Dept of Molecular Cell Biology at the MPI for Biophysical Chemistry in Göttingen
Habilitation (Molecular Developmental Genetics), University of Göttingen, Germany, 1999

Major Research Interests:

Molecular mechanisms of mammalian development and stem cell biology

In order to understand the molecular mechanisms governing mammalian development, we are using the mouse as a model system. We are focusing on the role of transcription factors in development. Using embryonic stem cells mouse loss-of-function mutants were generated. Specifically, we have shown that Pax and homeobox-containing genes are required for early decisions in organogenesis and cell differentiation. In addition, we are currently taking advantage of the *in vitro* differentiation potential of embryonic stem cells to search for molecules that are involved in dopaminergic neuron induction, differentiation, and/or survival.

Selected Recent Publications:

Mansouri A, Voss AK, Thomas T, Yokota Y, Gruss P (2000) *Uncx4.1* is required for the formation of the pedicles and proximal ribs and acts upstream of *Pax9*. Development 127: 2251-2258

Seale P, Sabourin LA, Girgis-Gabardo A, Mansouri A, Gruss P, Rudnicki MA (2000) Pax7 is Required for the Specification of Myogenic Satellite Cells From Pluripotential Muscle Stem Cells. Cell 102: 777-786

Mansouri A, Pla P, Larue L, Gruss P (2001) Pax3 acts cell autonomously in the neural tube and somites by controlling cell surface properties. Development 128: 1995-2005

Flamant F, Poguet AL, Plateroti M, Chassande O, Gauthier K, Streichenberger N, Mansouri A, Samarut J (2002) Congenital hypothyroid Pax8(-/-) mutant mice can be rescued by inactivating the TRalpha gene. Mol Endocrinol 16(1): 24-32

Address

Institut für Mikrobiologie und Genetik
Abteilung Molekulare Genetik und Präparative Molekularbiologie
Universität Göttingen
Grisebachstr. 8

37077 Göttingen
Germany

phone:
+49-551-39 3823
fax:
+49-551-39 3805
e-mail:
rmerkl@gwdg.de

Further Information:

http://www.gwdg.de/~rmerkl

Computer Scientist

Dipl.-Ing. (Biomedical Engineering)
Dipl.-Inf. (Computer Scientist)
Dr. rer. nat., Georg-August-Universität Göttingen (1996)
Akademischer Direktor since 2002

Major Research Interests:

Göttingen Genomics Laboratory (G2L) located at the Institute of Microbiology and Genetics is one of the major sequencing facilities for bacterial genomes in Germany. Together with the competence network GenoMik Göttingen it offers a complete pipeline of tools needed for data processing with regard to sequencing, annotation and genome or DNA-chip analysis. G2L offers e.g. via www services to query the inhouse generated databases and genomic sequences. I technically support all activities of automation and computation.

My main goal is a further analysis of genomic data sets beyond annotation. We work on genome structure and compare related genomes. In addition, we study the process of horizontal gene transfer. For these purposes, we combine tools available and develop additional software if necessary.

We develop and apply scoring-schemes for a precise characterization of gene groups. The basis for our approach is the log-odds-ratio of two codon-frequencies:

$$\text{score}(cdn) = \log \frac{f_t(cdn)}{f_m(cdn)} \quad (I)$$

Often is $f_t(cdn)$ the frequency of the codon in a family of target genes and $f_m(cdn)$ the mean frequency. We use the sum of score-values of those codons comprising a gene in order to characterize its relation to the target family. The underlying model assumes - like many other approaches - that each codon is selected independently of all other ones. It is known from test theory that any other approach based on such a model has a decision strength at most as good as a log-odds approach we selected in (I).
The first application of this method was the quantification of codon usage bias related to translational efficiency. A survey of all bacterial genomes made clear that a pronounced bias exists only in a small and taxonomically related number of bacterial genomes.
We now work on the development of scoring systems for the identification and characterization of "alien" genes in order to study horizontal gene transfer and genome structure. In parallel we develop in cooperation with the Institute for Numerical and Applied Mathematics of Göttingen University the theory for a statistical evaluation of resulting gene scores.

Selected Recent Publications:

Merkl R, Waack: Bioinformatik Interaktiv, WILEY-VCH, to appear in autumn 2002

Hauer B, Schmid R, Merkl R, Blasco F (2002) Cytochrome P450 Monooxygenases consisting of thermophilic bacteria. Patent WO 02/33057 A2

Larbig KD, Christmann A, Johann A, Hartsch T, Merkl R, Klockgether J, Fritz HJ, Tümmler B (2002) Gene islands integrated into tRNAGly genes confer genome diversity on a *Pseudomonas aeruginosa* clone. Accepted for publication by J Bact

Deppenmeier U, Johann A, Hartsch T, Merkl R, Schmitz RA, Martinez-Arias R, Henne A, Wiezer A, Bäumer S, Jacobi C, Brüggemann H, Lienard T, Christmann A, Bömeke M, Steckel S, Bhattacharyya A, Lykidis A, Overbeek R, Klenk HP, Gunsalus RP, Fritz HJ, Gottschalk G (2002) The Genome of *Methanosarcina mazei*: Evidence for Lateral Gene Transfer Between Bacteria and Archaea. J Mol Micro Biotechnol 4: 453-461

Hans-Ulrich Mösch

Address

Institute of Microbiology
and Genetics
University of Göttingen
Grisebachstr. 8

37077 Göttingen
Germany

phone:
+49-551-39 3777
fax:
+49-551-39 3820
e-mail:
hmoesch@gwdg.de

Further Information:

http://www.gwdg.de/~hmoesch/

Privatdozent Microbiology and Genetics

1986 Diploma (Biochemistry & Molecular Biology), Swiss Federal Institute of Technology, Zürich, Switzerland
1991 Ph.D., ETH, Zürich, Switzerland
1991 - 1993 Postdoctoral fellow, ETH Zürich, Switzerland
1993 - 1996 Postdoctoral fellow, Whitehead Institute for Biomedical Research, Cambridge (MA), U.S.A.
2001 Habilitation (Microbiology & Genetics), Georg-August-University, Göttingen, Germany

Major Research Interests:

Signal Transduction and Cell Polarity in Fungal Development

The development of metazoa from unicellular organisms represents one of the landmarks in evolution. Many pathogenic fungi are able to perform a transition in life cycle - termed "dimorphism" - from a unicellular yeast-form to a multicellular filamentous form. In human fungal pathogens, dimorphism is a significant virulence factor. A clear understanding of the gene products involved in hyphal growth is a promising avenue to provide molecular targets for drug development.

We are studying dimorphism in the baker's yeast *Saccharomyces cerevisiae*, one of the most well studied model systems for molecular genetic analysis and genomics. Pseudohyphal growth of *S. cerevisiae* is initiated by the nutritional signal nitrogen starvation and is accompanied by changes in cell polarity and morphogenesis. The budding pattern of cells changes, resulting in linear filamentous chains of cells. Cell morphogenesis is altered from ellipsoidal shaped yeast form cells to long thin pseudohyphal cells. Therefore, yeast and pseudohyphal forms of *S. cerevisiae* are thought to be distinct cell types.

We are investigating the genes and gene products that constitute the signaling pathways transducing environmental stimuli and that establish and regulate cell polarity during pseudohyphal development. Specifically, we are interested in the role of small GTP-binding proteins of the Ras superfamily as molecular switches of intracellular signaling. We are analyzing the molecular mechansims, by which the Ras2p and Cdc42p GTPases control intracellular signaling cascades during pseudohyphal development. These pathways include a pseudohyphal-specific mitogen-activated protein kinase (MAPK) cacade and the cyclic AMP (cAMP) pathway of *S. cerevisiae*.

In a further project, we investigate the identity and function of molecular landmarks that control selection of cell division sites. We are studying the molecular mechanisms, by which two asymmetrically localized proteins, Bud8p and Bud9p, regulate the function of Rsr1p, a small GTPase that acts as central regulator of yeast cell polarity.

Selected Recent Publications:

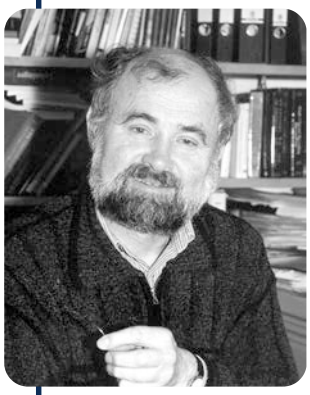
Roberts R, Mösch HU, Fink GR (1997) 14-3-3 proteins are essential for RAS/MAPK cascade signaling during pseudohyphal development in *S. cerevisiae*. Cell 89: 1055-1065

Mösch HU (2000) Pseudohyphal growth of *Saccharomyces cerevisiae*. Contrib Microbiol 5: 185-200

Taheri N, Köhler T, Braus GH, & Mösch HU (2000) Asymmetrically localized Bud8p and Bud9p proteins control yeast cell polarity and development. EMBO J 19: 6686-6696

Mösch HU, Köhler T, & Braus GH (2001) Different domains of the essential Rho-type GTPase Cdc42p required for growth and development of *S. cerevisiae*. Mol Cell Biol 21: 235-248

Köhler T, Wesche S, Taheri N, Braus GH, & Mösch HU (2002) Dual role of the TEA/ATTS family transcription factor Tec1p in regulation of gene expression and development. Eukaryot Cell: in press



Professor, Director at the Max Planck Institute for Biophysical Chemistry

M.Sc. (Physics), University of Wisconsin (1967)
Ph.D. (Physics), Institute of Technology, Munich (1970)
Research associate at the Max Planck Institute for Biophysical Chemistry in Göttingen, Germany (1972 - 1975 and 1976 - 1982) and as a guest in the laboratory of Dr. Ch. F. Stevens at Yale University, Dept. of Physiology, New Haven, Conn. (1975 - 1976)
Fairchild Scholar, California Institute of Technology; Pasadena, USA (1989)
Director of the Membrane Biophysics Department at the Max Planck Institute for Biophysical Chemistry, Göttingen, Germany, since 1983

Address

Dept. Membrane Biophysics
Max Planck Institute for Biophysical Chemistry
Am Fassberg 11

37077 Göttingen
Germany

phone:
+49-551-201 1675
fax:
+49-551-201 1688
e-mail:
eneher@gwdg.de

Further Information:

http://www.mpibpc.gwdg.de/abteilungen/140/

Major Research Interests:

Molecular Mechanisms of Exocytosis, Neurotransmitter Release, and Short Term Synaptic Plasticity

In order to understand how the brain handles its information flow and adjusts synaptic connections on the second and subsecond timescale, one has to understand all aspects of synaptic transmission ranging from availability of vesicles for exocytosis, presynaptic electrophysiology, Ca^{++} signalling, the process of exocytosis, and postsynaptic neurotransmitter action. Our work concentrates on presynaptic aspects. We study the basic mechanisms of exocytosis, using adrenal chromaffin cells as a model system and the patch-clamp method. This work, in which intracellular Ca^{++} is manipulated (caged Ca^{++}) and measured on the single cell level aims at understanding the role of specific synaptic proteins in the maturation and exocytosis of secretory vesicles. We use neuronal cell cultures and brain slices for studying mechanisms of short term plasticity, such as depression and paired pulse facilitation. The Calyx of Held, a specialized synapse in the auditory pathway, offers unique possibilities for simultaneous pre- and postsynaptic voltage clamping. This allows a quantitative analysis of the relationship between [Ca^{++}] and transmitter release.

Selected Recent Publications:

Klingauf J and Neher E (1997) Modeling buffered Ca^{2+} diffusion near the membrane: Implications for secretion in neuroendocrine cells. Biophys J 72: 674-690

Neher E (1998) Vesicle pools and Ca^{2+} microdomains: new tools for understanding their roles in neurotransmitter release. Neuron 20: 389-399

Xu T, Binz T, Niemann H and Neher E (1998) Multiple kinetic components of exocytosis distinguished by neurotoxin sensitivity. Nature Neuroscience 1: 192-200

Xu T, Rammner B, Margittai M, Artalejo A R, Neher E and Jahn R (1999) Inhibition of SNARE complex assembly differentially affects kinetic components of exocytosis. Cell 99: 713-722

Schneggenburger R, and Neher E (2000) Intracellular calcium dependence of transmitter release rates at a fast central synapse. Nature 406: 889-893

Voets T, Toonen R F, Brian E C, deWit H, Moser T, Rettig J, Suedhof T C, Neher E and Verhage M (2001) Munc-18-1 promotes large dense-core vesicle docking. Neuron 31: 581-591

Voets T, Moser T, Lund P-E, Chow R H, Geppert M, Suedhof T C and Neher E (2001) Intracellular calcium dependence of large dense-core vesicle exocytosis in the absence of synaptotagmin I. PNAS 98: 11680-11680

Mary Osborn

Address

Department of Biochemistry and Cell Biology,
Max Planck Institute for Biophysical Chemistry
Am Fassberg 11

37077 Göttingen
Germany

phone:
+49-551-201 1486
fax:
+49-551-201 1578
e-mail:
mosborn@gwdg.de

Further Information:

http://www.mpibpc.gwdg.de/abteilungen/090/

Professor, Scientist at the Max Planck Institute for Biophysical Chemistry

PhD, Pennsylvania State University, State College, Pa, 1967
Postdoc: J.D. Watson, Harvard University, Cambridge, Mass, 1967 - 1969
Positions:
MRC Laboratory Molecular Biology, Cambridge, England, 1969 - 1972
Cold Spring Harbor Laboratory, CSH, NY, 1972 - 1975
Max Planck Institute for Biophysical Chemistry, 1975
Honorary Professor, University of Göttingen, 1989
Doctorate "honoris causa", Pomeranian Medical Academy, Szczecin, Poland 1997

Major Research Interests:

Cellular organisation is based on a complex series of events involving gene expression, signal transduction, membrane traffic and the function of dynamic cytoskeletal networks. This department has pioneered the use of antibodies in immunofluorescence microscopy to understand the distribution and function of the two ubiquitous filament systems - microfilaments and microtubules - which have as their major proteins actin and tubulin respectively. Antibodies also allowed us to show that intermediate filaments in different cell types are built from distinct but related proteins. Applying this knowledge we showed that intermediate filament proteins are useful markers in differential tumor diagnosis, where they can distinguish the major tumor types
Certain antibodies also allow a particular cytoskeletal organisation to be manipulated. When microinjected into live cells they not only find their target but also disturb the organisation creating a new phenotype which can be detected by immunofluorescence microscopy. Fine analyses of complexes within particular supermolecular organisations have been helped by the use of recombinantly expressed proteins or their individual domains. These can be analysed *in vivo* by transfecting the corresponding cDNA constructs into cultured cells.
One example of this approach is work on NuMA. NuMA is an insoluble protein during interphase and translates to the spindle poles at mitosis. Microinjection of a particular NuMA antibody causes the formation of aberrant spindles and mitotic arrest as well as resulting in the formation of micronuclei. Transient overexpression of NuMA in HeLa cells also induced the formation of a three-dimensional lattice that fills the nucleus of interphase cells. This lattice can be observed by electron microscopy and use of mutant constructs showed that the lattice spacing is dependent on the length of the rod domain. *In vitro* experiments show that recombinant NuMA builds multiarm oligomers. Computer modeling with a 12-arm oligomer as the structural unit can explain the observed nuclear lattices and suggests that the same mechanism might be used to build more restricted NuMA lattices in normal cells. Other experiments are directed towards identifying and characterising proteins that bind to NuMA.
Thus, the research interests of the group are in the general area of cell biology and pathology - more specifically in certain proteins of the cell nucleus, in the cytoskeleton, and in the use of antibodies in cancer diagnosis.

Selected Recent Publications:

Gueth-Hallonet C, Wang J, Harborth J, Weber K and Osborn M (1998) Induction of a regular nuclear lattice by overexpression of NuMA. Exp Cell Res 243: 434-452

Harborth J, Wang J, Gueth-Hallonet C, Weber K and Osborn M (1999) Self assembly of NuMA: multiarm oligomers as structural units of a nuclear lattice. EMBO J 18: 1689-1700

Harborth J, Weber K and Osborn M (1995) Epitope mapping and direct visualization of the parallel, in-register arrangement of the double-stranded coiled-coil in the NuMA protein. EMBO J 14: 2447-2460

Harborth J, Weber K and Osborn M (2000) GAS41, a highly conserved protein in eukaryotic nuclei, binds to NuMA. J Biol Chem 275: 31979-31985

Osborn M(1998) Immunofluorescence microscopy of cultured cells. In: Cell Biology: A Laboratory Handbook, Academic Press: 462-468

Research Associate at the Department of Plant Biochemistry

Dr. rer nat. at the University of Cologne, 1989
Postdoc at the Max Planck Institute for Plant Breeding Research in Cologne, 1990 - 1991
Postdoc at the Department of Molecular Biology, Wageningen Agricultural University, 1991 - 1997
Scientific assistant at the Department of Plant Biochemistry at Göttingen University, since 1997

Major Research Interests:

Legume/rhizobia and actinorhizal symbioses go back to a common ancestor which must have aquired a trait based on which a root nodule symbiosis could develop. The aim of my research is identify this basic trait that was necessary for the development of root nodule symbioses. For this purpose, we compare different features in diverse symbiotic systems to find out which are family-specific adaptations and which are common to all root nodule symbioses.

- Carbon partitioning in nodules
- Comparison of the expression patterns of homologous genes in different types of nodules
- Comparison of nodule induction mechanisms in legumes and intracellularly as well as intercellularly infected actinorhizal plants: search for marker genes
- Infection of cortical cells in actinorhizal symbioses: What is required for the stable internalization of the microsymbiont?
- Isolation and characterization of *Lotus japonicus* mutants affected in the establishment of an arbuscular mycorrhizal symbiosis with the aim to identfy genes encoding proteins involved in the stable internalization of a fungal microsymbiont

Address

Albrecht-von-Haller Institute for Plant Sciences
Dept. Biochemistry of the Plant
University of Göttingen
Justus-von-Liebig-Weg 11

37077 Göttingen
Germany

phone:
+49-551-39 5748
fax:
+49-551-39 5749
e-mail:
kpawlow@gwdg.de

Selected Recent Publications:

Ribeiro A, Akkermans ADL, van Kammen A, Bisseling T, Pawlowski K (1995) A nodule-specific gene encoding a subtilisin-like protease is expressed in early stages of actinorhizal nodule development. Plant Cell 7: 785-794

Guan C, Akkermans ADL, van Kammen A, Bisseling T, Pawlowski K (1997) *ag13* is expressed in *Alnus glutinosa* nodules in infected cells during endosymbiont degradation and in the nodule pericycle. Physiol Plant 99: 601-607

Pawlowski K, Twigg P, Dobritsa S, Guan C, Mullin BC (1997) A nodule-specific gene family from *Alnus glutinosa* encodes glycine- and histidine-rich proteins expressed in the early stages of actinorhizal nodule development. Mol Plant-Microbe Interact 10: 656-664

Okubara PA, Pawlowski K, Murphy TM, Berry AM (1999) Symbiotic root nodules of the actinorhizal Plant *Datisca glomerata* express rubisco activase mRNA. Plant Physiol 120: 411-420

Laplaze L, Duhoux E, Franche C, Frutz, T, Svistoonoff S, Bisseling T, Bogusz D, Pawlowski K (2000) Actinorhizal prenodule cells display the same differentiation as the corresponding nodule cells. Mol Plant-Microbe Interact 13: 107-112

Tomas Pieler

Professor of Biochemistry

Dr. rer. nat. Biochemistry, Freie Universität Berlin, 1984
Guest Investigator, Rockefeller University, New York (1985/86)
Heisenberg fellow, Freie Universität Berlin and Rockefeller University, New York (1986/87)
Junior group leader, Max Planck Institut für Molekulare Genetik, Berlin (1988 - 92)
Professor of Biochemistry, Georg August Universität Göttingen since 1992
Head of the Department of Developmental Biochemistry, Georg-August-Universität Göttingen

Address

Dept. Developmental Biochemistry
University of Göttingen
Humboldtallee 23

37073 Göttingen
Germany

phone:
+49-551-39 5683
fax:
+49-551-39 5960
e-mail:
tpieler@gwdg.de

Further Information:

http://www.uni-bc.gwdg.de/entwickl./pieler.htm

Major Research Interests:

The differentiation of complex organisms has its origin in the asymmetric distribution of regulatory proteins or of the corresponding mRNAs in the egg, as well as in a complex system of cell/cell communication events via extracellular signalling molecules during early stages of embryogenesis. The genes that encode for these different activities form functional networks which provide the basis for the genetic programming of embryonic development. Our primary research interest is in the identification of such regulatory genes and networks in vertebrates, as well as in the definition of their regulation and function on the molecular level. For this purpose, we use *Xenopus laevis*, a frog from South Africa, as a model system. As a traditional object in experimental embryology and in comparison with other experimental systems such as the mouse, use of *Xenopus* offers a number of practical advantages. Oocytes and embryos are easy to collect in large numbers, they are easy to manipulate by relatively simple techniques, also because embryonic development proceeds in the petridish, and, more recently, it has even become possible to generate hundreds of transgenic frogs within a single experimental day. The research topics that we are focussing on are:

-nucleocytoplasmic transport routes for RNA and proteins
-signal transduction pathways in early vertebrate development (retinoic acid, Hedgehog, Notch and TGF- signalling)
-organogenesis: formation of brain, eye and liver in vertebrate embryos.

Selected Recent Publications:

Rudt F and Pieler T (1996) Cytoplasmic retention and nuclear import of 5S ribosomal RNA containing RNPs. EMBO J 15: 1383-1391

Bellefroid E, Bourguignon C, Hollemann T, Ma Q, Anderson D J, Kintner C and Pieler T (1996) X-MyT1a *Xenopus* C2HC type zinc finger protein with a regulatory function in neuronal differentiation. Cell 87: 1191-1202

Panitz F, Krain B, Hollemann T, Nordheim A and Pieler T (1998) The Spemann organizer-expressed zinc finger gene Xegr-1 responds to the MAP kinase/Ets-SRF signal transduction pathway. EMBO J 17: 4414-4425

Hollemann T, Chen Y, Grunz H and Pieler T (1998) Regionalized metabolic activity establishes boundaries of retinoic acid signalling. EMBO J 17: 7361-7372

Hollonet M, Hollemann T, Pieler T and Gruss P (1999). Mutation of *Vax1*, a novel homeobox-containing gene, leads to defective development of the basal forebrain and visual system. Genes and Dev 13: 3106-3114

Irmelin Probst

Professor of Biochemistry

Diploma (Biology), Georg-August-University, Göttingen (Germany), 1972
Dr. rer. nat., Dep. Microbiology, University Göttingen, 1975
Habilitation (Biochemistry), Dep. Biochemistry, University Göttigen, 1986
apl. Professor, Dep. Biochemistry, Univ. Göttingen since 1993

Address

Dept. of Biochemistry
and Molecular Cell
Biology
University of Göttingen
Humboldtallee 23

37073 Göttingen
Germany

phone:
+49-551-39 5961
fax:
+49-551-39 5960
e-mail:
iprobst@gwdg.de

Major Research Interests:

Hepatocytes, the parenchymal cells of the liver, exert fundamental metabolic tasks (glucose homeostasis, urea and plasma protein production, biotransformation); gene expression and thus metabolic rates are tightly controlled by a network of signals from nerves, hormones and neighbouring liver non-parenchymal stromal cells (endothelium, macrophages, fat-storing perisinusoidal cells).

Regulation of glucose metabolism by hormones (insulin, glucocorticoids) has been the center of research. In addition investigations are now focusing on the influence of epithelial-mesenchymal cell-cell interactions with respect to hepatocyte differentiation and proliferation. Newly developed serumfree coculture models show prolonged hepatocyte differentiation by stromal cells through both soluble and membraneous signals. We are interested in the characterization of the differentiation factors.

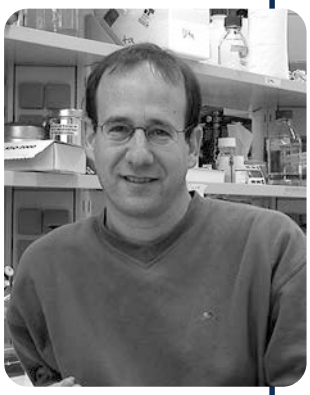
Experiments with these culture models also demonstrated growth of adult hepatocytes supported by soluble stromal cell signals. We are now describing hepatocyte growth kinetics with respect to adult differentiated, fetal and embyonic markers.

Selected Recent Publications:

Ries K, Krause P, Solsbacher M, Schwartz P, Unthan-Fechner K, Christ B, Markus PM, Probst I (2000) Elevated expression of hormone-regulated rat hepatocyte functions in a new serum-free hepatocyte-stromal cell coculture model. In Vitro Cell Dev Biol - Animal 36: 502-512

Klein H, Ullmann S, Drenckhan M, Grimmsmann T, Unthan-Fechner K, Probst I (2002) Differential modulation of insulin actions by dexamethasone: studies in primary cultures of adult rat hepatocytes. J Hepatol: in press

Erez Raz



Group Leader at the Max Planck Institute for Biophysical Chemistry

Ph.D. 1994, The Weizmann Institute of Science, Rehovot, Israel
Group leader at the University of Freiburg, Department of Developmental Biology, Freiburg, 1997
Group leader at the at the Max Planck Institute for Biophysical Chemistry

Address

Germ Cell Development
MPI for Biophysical Chemistry
Am Fassberg 11

37077 Göttingen
Germany

phone:
+49-551-201 1487
fax:
+49-551-201 1504
e-mail:
eraz@gwdg.de

Further Information:

http://www.mpibpc.gwdg.de/abteilungen/165/

Major Research Interests:

Our group is interested in two aspects of Primordial Germ Cell (PGC) development. First, we are studying the molecular mechanisms that enable these cells to migrate towards the region of the gonad where they differentiate into sperm or oocytes. The second direction is aimed at understanding the molecular basis for the specification and the differentiation of these cells. We have chosen to explore these processes using zebrafish, a vertebrate model organism. In this system we isolate and study the function of genes that are expressed in these cells. Using this strategy we have identified a number of genes whose function is essential for proper maintenance of germ cells as well as for their migration. In addition, analysis of the migration process in mutant embryos in which somatic tissues do not differentiate properly, showed that the PGCs obtain guidance cues from neighbouring cells which allow them to reach their target.

Selected Recent Publications:

Weidinger G, Wolke U, Köprunner M, Klinger M, Raz E (1999) Identification of tissues and patterning events required for distinct steps in early migration of zebrafish primordial germ cells. Development 126: 5295-5307

Raz E (2000) The function and regulation of vasa-like genes in germ-cell development. Genome Biology 3: 1017.1-1017.6

Köprunner M, Thisse C, Thisse B, Raz E (2001) A zebrafish nanos related gene is essential for the development of primordial germ cells. Genes and Development 15: 2877-2885

Weidinger G, Wolke U, Köprunner M, Thisse C, Thisse B, Raz E (2002) Regulation of zebrafish primordial germ cell migration by attraction towards an intermediate target. Development 129: 25-36

Wolke U, Weidinger G, Köprunner M, Raz E (2002) Multiple levels of post-transcriptional control lead to germ line specific gene expression in the zebrafish. Current Biology 12: 289-294

Müller K, Thisse C, Thisse B, Raz E (2002) Expression of a linker histone-like gene in the primordial germ cells in zebrafish. Mechanisms of Development 117: 253-257

Ciruna B, Weidinger G, Knaut H, Thisse B, Thisse C, Raz E, Schier AF (2002) Production of maternal-zygotic mutant zebrafish by germ-line replacement. Proceedings of the national Academy of Science USA: in press

Raz E (2002) Primordial germ cell development in zebrafish. Seminars in Cell and Developmental Biology 337: in press

Christian Rosenmund

Group Leader at the Max Planck Institute for Biophysical Chemistry

PhD Neurosciences, Vollum Institute, Portland, OR, USA 1993
Postdoctoral fellow Salk Institute, La Jolla, CA, USA 1993 - 1995
Helmholtz fellow, MPI for Biophysical Chemistry 1995 - 1997
Heisenberg fellow and independent group leader, Dept. Membrane Biophysics at the Max Planck Institute for Biophysical Chemistry, since 1998

Address

Max Planck Institut für Biophysikalische Chemie
Am Fassberg 11

37077 Göttingen
Germany

phone:
+49-551-201 1672
fax:
+49-551-201 1688
e-mail:
crosenm@gwdg.de

Further Information:

http://www.mpibpc.gwdg.de/abteilungen/140/groups/index.html

Major Research Interests:

Neurotransmission at the central synapse involves a series of functional highly coordinated steps. On the presynaptic site, synaptic vesicles tether, prime to fusion competence, and fuse Ca^{2+} triggered with the plasma membrane to release the neurotransmitter in the synaptic cleft. Postsynaptically, ionotropic receptors respond to binding of the neurotransmitter with distinct conformational steps that shape the postsynaptic response. We characterize synaptic properties with standard patch-clamp electrophysiology and optical techniques from cultured primary hippocampal neurons of transgenic mice that bear deletions or mutations of pre- or postsynaptic proteins. We have identified and/or characterized the vesicular neurotransmitter transporters VGLUT and VGAT, the vesicle priming factor Munc13, and the core complex associated proteins synaptotagmin 1 and complexin. Furthermore, knock-out mice are used to examine protein-domain and -residue function by gain of function rescue experiments by viral overexpression of wildtype and mutant proteins. Postsynaptically, we examine structural principles that control the gating properties of AMPA-type glutamate receptors.

Selected Recent Publications:

Varoqueaux F, Sigler A, Rhee SJ, Brose N, Enk C, Reim K, Rosenmund C (2002) Total arrest of spontaneous and evoked synaptic transmission but normal synaptogenesis in the absence of Munc13 mediated vesicle priming. PNAS 99: 9037-9042

Rosenmund C, Sigler A, Augustin I, Reim K, Brose N, Rhee JS (2002) Differential control of vesicle priming and short term plasticity by Munc13 isoforms. Neuron 33: 411-424

Rhee JS, Betz A, Pyott S, Reim K, Varoqueaux F, Augustin I, Hesse D, Südhof TC, Takahashi M, Rosenmund C, Brose N: β-phorbol ester- and diacylglycerol-induced augmentation of neurotransmitter release from hippocampal neurons is mediated by Munc13s and not by PKCs. Cell 108: 121-133

Mansour M, Nagarajan N, Nehring R, Clements J, Rosenmund C (2001) Heteromeric AMPA receptors assemble with a preferred subunit stoichiometry and spatial arrangement. Neuron 32: 841-853

Takamori S, Rhee JS, Rosenmund C, Jahn R (2000) Identification of a vesicular glutamate transporter that defines a glutamatergic phenotype in neurons. Nature 407: 189-94

Ruth A. Schmitz-Streit

Privatdozent Microbiology

1989 Diploma (Biology), Philipps-University of Marburg, Germany
1992 Dr. rer. nat. (Microbiology) Philipps-University of Marburg, Germany
1993 Postdoctoral Fellow, Philipps-University Marburg, Germany
1994 - 1996 Postdoctoral Fellow, University of California, Berkeley, USA
Since 1996 group leader, Georg-August University of Göttingen, Department of Microbiology and Genetics
2001 Habilitation (Microbiology), Georg-August University of Göttingen

Address

Dept. General Microbiology,
Institute of Microbiology and Genetics,
Grisebachstr.8

37077 Göttingen
Germany

phone:
+49-551-39 3796
fax:
+49-551-39 3808
e-mail:
rschmit@gwdg.de

Further Information:

http://www.gwdg.de/~genmibio/lab214.html

Major Research Interests:

The main interest of our group is the analysis of nitrogen metabolism in Prokarya. Our model organisms are the free-living nitrogen fixing bacterium *Klebsiella pneumoniae* and the methanogenic archaeon *Methanosarcina mazei* strain Gö1.
K. pneumoniae is able to reduce molecular nitrogen to ammonia under oxygen- and nitrogen-limitation. Synthesis of the key enzyme (nitrogenase) is regulated in response to environmental signals by the two regulatory proteins NifA and NifL. Our research is focused on the characterization of the oxygen and nitrogen signal transduction towards the two regulatory proteins by genetic, biochemical and molecular biological methods. We further analyse the overall regulation of nitrogen metabolism in *M. mazei*. Besides classical genetic approaches our studies mainly concentrate on genome-wide transcription analysis using whole genome DNA-microarrays to analyze the regulatory network of nitrogen metabolism and potential cross talks between the nitrogen and carbon regulon in *M. mazei*.
Another interest of the laboratory together with the groups of Dr. Rolf Daniel and Dr. Wolfgang Streit is the construction of environmental libraries and screening for acquired abilities of the resulting recombinant organisms. It has been estimated that > 99 % of microorganisms observable in nature typically cannot be cultivated by using standard techniques. Thus, a large fraction of the diversity in an environment is still unknown. Our approach is to use the genetic diversity of the microorganisms in a certain environment as a whole to encounter new genes and gene products for various purposes. The genetic diversity is accessed by isolation of DNA followed by direct cloning of functional genes from environmental samples.

Selected Recent Publications:

Klopprogge K, Grabbe R, Hoppert M, Schmitz RA (2002). Membrane association of *Klebsiella pneumoniae* NifL is affected by molecular oxygen and combined nitrogen. Archives of Microbiology 117: 223-234

Ehlers C, Grabbe R, Veit K, Schmitz RA (2002) Characterization of GlnK1 from *Methanosarcina mazei* strain Gö1: Complementation of an *Escherichia coli* glnK mutant strain by *M. mazei* GlnK1. J Bacteriol 184: 1028-1040

Deppenmeier U, Johann A, Hartsch T, Merkl R, Schmitz RA, Lienard T, Henne A, Martinez-Arias R, Wiezer A, Jacobi C, Brüggemann H, Christmann A, Bäumer S, Bömeke M, Steckel S, Bhattacharyya A, Lykidis A, Overbeek R, Klenk HP, Gunsalus RP, Fritz HJ, Gottschalk G (2002) The genome of *Methanosarcina mazei*: evidence for lateral gene transfer between Bacteria and Archaea. J Mol Microbiol Biotechnol 4: 453-461

Grabbe R, Klopprogge K, Schmitz RA (2001) Fnr is Required for NifL-dependent Oxygen Control of nif Gene Expression in *Klebsiella pneumoniae*. Journal of Bacteriology 183: 1385-1393

Henne A, Schmitz RA, Bömeke M, Gottschalk G, Daniel R (2000) Screening of environmental DNA libraries for the presence of genes conferring lipolytic activity to *Escherichia coli*. Appl Environ Microbiol 66: 3113-3116

Thomas R. Schneider

Habilitand in Structural Chemistry

Physics Diploma, Technical University of Munich, 1991
PhD, European Molecular Biology Laboratory & Technical University of Munich, 1996
Postdoc, Max Planck Institute for Molecular Physiology, Dortmund, Germany
1996 - 1997
Research Assistant (Habilitand) in Structural Chemistry since 1997

Address

Department of Structural Chemistry
Georg August University of Göttingen
Tammannstr. 4

37077 Göttingen
Germany

phone:
+49-551-39 3059
fax:
+49-551-39 2581
e-mail:
trs@shelx.uni-ac.gwdg.de

Further Information:

http://shelx.uni-ac.gwdg.de/~trs

Major Research Interests:

Methods for Macromolecular Crystallography & Structural Aspects of Enzyme Catalysis

Crystal structures of biological macromolecules and their assemblies are the corner stones of modern structural biology. The determination of a crystal structure still is an exciting endeavour and requires expertise in areas as diverse as molecular biology, protein chemistry, and experimental and computational crystallography.

To tackle ever more challenging problems, the methods for macromolecular crystallography need constant development. We are concentrating on the development of computational methods to facilitate the determination of larger and more complicated structures with the highest possible accuracy. In particular, we are interested in pushing the limits of MAD phasing and in the determination of protein structures at atomic (better than 1.2 Å) resolution. Another focus of our work is the development of algorithms for the objective comparison of three-dimensional structures.

On the experimental side, we are trying to understand the mechanism and the regulation of enzymes on a structural level, for example for enzymes envolved in the biosynthesis of aromatic amino acids. In order to exploit the full repertoire of modern biology, these projects are done in close interdisciplinary collaboration with biologically oriented groups in Göttingen and elsewhere.

Selected Recent Publications:

Schneider TR (2002) A genetic algorithm for the identification of conformationally invariant regions in protein molecules. Acta Cryst D58: 195-208

Antonin W, Fasshauer D, Becker S, Jahn R, Schneider TR (2002) Crystal structure of the endosomal SNARE complex reveals common structural principles of all SNAREs. Nat Struct Biol 9(2): 107-111

Schneider TR, Gerhardt E, Lee M, Lian P, Anderson KS, Schlichting I (1998) Loop Closure and Intersubunit Communication in Tryptophan Synthase. Biochemistry 37: 5394-5406

Garman EF, Schneider TR (1997) Macromolecular Cryocrystallography. J Appl Cryst 30: 211-237

Sheldrick GM, Schneider TR (1997) SHELXL: High Resolution Refinement. Methods in Enzymology (R.M. Sweet and C.W. Carter Jr., eds.), Academic Press; Orlando, Florida, 277: 319-343

Ekkehard Schulze

Research Associate at the Third Department of Zoology

Dr. rer. nat. (Ph.D.) 1992, University of Göttingen
Principal investigator
1992 - 2000 akademischer Rat auf Zeit, University of Göttingen
1994 - 1995 Senior research associate at the
Institute of Pathology, Case Western Reserve University, Cleveland, OH

Address

Third Department of Zoology - Developmental Biology
University of Göttingen,
Humboldtallee 34A,

37073 Göttingen,
Germany

phone:
+49-551-39 5426
fax:
+49-551-39 5416
e-mail:
eschulz@gwdg.de

Major Research Interests:

Functional genomics of selected genes, gene families, and biological processes in the nematode *Caenorhabditis elegans*. Traditional (forward) genetics provided mutants and functional assignments for about 3000 genes of *C. elegans*. The complete genome, however, encodes almost 20,000 proteins. Therefore for 85% of the genome the function is unknown. The advent of reverse genetics by RNA interference (RNAi) greatly facilitates the systematic investigation of gene functions. We determine the biological functions of selected uncharacterized *C. elegans* genes by RNA interference experiments. Our main focus is on animal specific genes and processes, which control cell differentiation and development. One project addresses the diverse functions of the linker histone gene family in *C. elegans*. In a second project we tested all genes of chromosome I for implication in the formation of the dauer larva, a morphologically and physiologically deviating developmental state alternative to the third larval stage. Currently we continue to characterize the genes identified in this screening.

Selected Recent Publications:

Jedrusik MA, Vogt S, Claus P, Schulze E (2002) A novel linker histone-like protein is associated with cytoplasmic filaments in *Caenorhabditis elegans*. J Cell Sci 15: 2881-2891

Karabinos A, Schulze E, Klisch T, Wang J, Weber K (2002) Expression profiles of the essential intermediate filament (IF) protein A2 and the IF protein C2 in the nematode *Caenorhabditis elegans*. Mech Develop 117: 311-314

Trappe R, Schulze E, Rzymski T, Fröde S, Engel W (2002) The *Caenorhabditis elegans* ortholog of human PHF5a shows a muscle specific expression domain and is essential for *C. elegans* morphogenetic development. Biochem Biophys Res Comm 297: 714-721

Jedrusik MA, Schulze E (2001) A single histone H1 isoform (H1.1) is essential for chromatin silencing and germline development in *Caenorhabditis elegans*. Development 128: 1069-1080

George M. Sheldrick

Professor of Structural Chemistry and part-time programming technician at the University of Göttingen

PhD (1966) University of Cambridge with E.A.V. Ebsworth; thesis entitled "NMR Studies of Inorganic Hydrides"
1966 - 1978: University Lecturer and Fellow of Jesus College, Cambridge
Author of more than 700 scientific papers and of a computer program called SHELX (http://shelx.uni-ac.gwdg.de/SHELX/)
Director of the Institute of Inorganic Chemistry

Address

Institute of Inorganic Chemistry
Tammannstr. 4

37077 Göttingen
Germany

phone:
+49-551-39 3021
fax:
+49-551-39 2582
e-mail:
gsheldr@shelx.uni-ac.gwdg.de

Further Information:

http://shelx.uni-ac.gwdg.de/

Major Research Interests:

Interested in methods of solving and refining crystal structures (both small molecules and proteins) and in structural chemistry.
Holy Grail: the Crystallographic Phase Problem. If only there was an easy way of measuring the phases of X-ray reflections as well as their intensities, crystal structures could be determined directly. At resolutions of better than about 2.5A, there are more measured intensities than atomic coordinates, so the problem is overdetermined and there should be a solution. Recently we were able to increse the size of structures that can be solved from the intensity data alone by 'ab initio direct methods' from about 200 to 1000 unique atoms, given data to 'atomic resolution', but most interesting macromolecular structures are still out of the reach of such methods. Indirctly however the same techniques are proving very useful for the solution of large macromolecular structures when a little starting phase information is available, e.g. by incorporating heavy atoms into the crystal.

Selected Recent Publications:

Schaefer M, Schneider T R & Sheldrick G M (1996) Crystal structure of vancomycin. Structure 4: 1509-1515

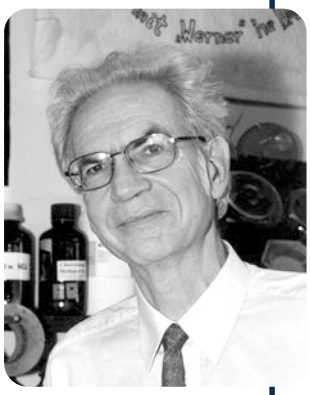
Sheldrick G M (1998) SHELX: applications to macromolecules. In Direct Methods for Solving Macromolecular Structures. Ed. S. Fortier. Dordrecht: Kluwer Academic Publishers: 401-411

Herbst-Irmer R & Sheldrick G M (1998) Refinement of twinned structures with SHELXL97. Acta Cryst B54: 443-449

Parasini E, Capozzi F, Lubini P, Lamzin V, Luchinat C and Sheldrick G M (1999) Ab initio solution and refinement of two high-potential iron protein structures at atomic resolution. Acta Cryst D55: 1773-1784

Usón I, Sheldrick G M (1999) Advances in direct methods for protein crystallography. Current Opinion in Structural Biology 9: 643-648

Axel Zeeck



Professor of Biomolecular Chemistry

Dr. rer. nat. 1966
Habilitation 1974
Professor since 1980

Address

Institute for Organic Chemistry
University of Göttingen
Tammannstr. 2

37077 Göttingen
Germany

phone:
+49-551-39 3263
fax:
+49-551-39 12593
e-mail:
azeeck@gwdg.de

Further Information:

http://www.gwdg.de/~ucoc/zeeck/

Major Research Interests:

Natural products chemistry and biochemistry

Microorganisms are an important source for novel natural products, such as antibiotics and other active substances. For the isolation of chemically new and biologically active compounds we especially use actinomycetes and fungi imperfecti. In the search for new secondary metabolites two approaches have been applied successfully, both, the biological and chemical screening. For the latter we use TLC with different types of staining reagents or HPLC with varying detection methods (UV, MS, CD) to record all metabolites produced in the culture extracts. Most of the strains evaluated were isolated from earth samples and cultivated up to 50-litre fermenters in my group.

The chemical work starts with the isolation and structure elucidation of the novel natural products. Structural problems were solved by using modern spectroscopic methods (e.g. MS, high field 2D-NMR, X-ray analysis). We have established several hundreds of metabolites, which belong to different chemical classes (e.g. peptides, macrolides, quinones, glycosides, polyenes). Further investigations focus on the biosynthesis of the novel compounds, starting with feeding experiments with stable isotope precursors. We are interested in new biosynthetic pathways and try to modify the metabolites by applying the precursor-directed biosynthesis and by changing the cultivation conditions. The biological activity of our metabolites and derivatives is established in different test systems, mostly in cooperation with colleagues and industry.

Selected Recent Publications:

Bode HB, Zeeck A (2000) Structure and biosynthesis of kendomycin, a carbocyclic ansa-compound from *Streptomyces*. J Chem Soc Perkin Trans 1: 323-328, 2665-2670

Höfs R, Walker M, Zeeck A (2000) Hexacyclinic acid, a polyketide from *Streptomyces* with a novel carbon skeleton. Angew Chem Int Ed Engl 39: 3258-3261

Dröse S, Boddien C, Gassel M, Ingenhorst G, Zeeck A, Altendorf K (2001) Semisynthetic Derivatives of Concanamycin A and C, as Inhibitors of V- and P-Type ATPases: Structure-Activity Investigations and Developments of Photoaffinity Probes. Biochemistry 40: 2816-2825

Bode HB, Bethe B, Höfs R, Zeeck A (2002) Big Effects from Small Changes: Possible Ways to Explore Nature's Chemical Diversity. ChemBioChem 3: 619-627

Martin Zeidler

Group Leader at the Max Planck Institute for Biophysical Chemistry

DPhil, EMBL, Heidelberg, Germany 1995
Postdoc Work with Prof. Norbert Perrimon, Harvard Medical School, Boston, USA
Emmy Noether Prize Holder at the Max Planck Institute for Biophysical Chemistry since 2001

Address

Dept of Developmental Biology
Max Planck Institute for Biophysical Chemistry
Am Fassberg 11

37077 Göttingen
Germany

phone:
+49-551-201 1671
fax:
+49-551-201 1755
e-mail:
mzeidle@gwdg.de

Further Information:

http://www.mpibpc.gwdg.de/abteilungen/170/proj9.html

Major Research Interests:

The fruit fly *Drosophila melanogaster* is a model organism that combines sophisticated genetics and well understood development in a small, fast, easy to manipulate package. Our group is using this system to study the components and requirements for the JAK/STAT signal transduction pathway. The JAK/STAT pathway is involved in blood cell production and the immune response in vertebrates and its mis-activation has been implicated in a number of cancers and leukemias. We are following two complementary approaches to better understand this important pathway. Firstly, we are using the genetics of *Drosophila* to identify new components of the pathway and gene products that interact and regulate the pathway. Traditional "forward" genetic screens and tissue culture based RNAi screens are being undertaken. Secondly, the developmental processes that require JAK/STAT signalling are being investigated and characterised. In this way we can hope to better understand what the pathway does and with what other signal transduction pathways it interacts with. The results from this research is being integrated with what is already known to extend our understanding of the pathway.

Selected Recent Publications:

Zeidler M P, Bach E A and Perrimon N (2000) The roles of the JAK/STAT pathway in *Drosophila.* Oncogene 19: 2589-2606

Zeidler M P, Perrimon N, Strutt D I (1999) Four-jointed is required in the *Drosophila* eye for ommatidial polarity specification. Current Biology 9: 1363-1372

Zeidler M P, Perrimon N, Strutt D I (1999) Polarity determination in the *Drosophila* eye: a novel role for Unpaired and JAK/STAT signalling. Genes & Develop 13: 1342-1353

Staff Methods Courses

Thorsten	Adams	U Göttingen	Molecular Genetics and Preparative Molecular Biology
Werner	Albig	U Göttingen	Molecular Biology
Angel	Angelov	U Göttingen	General and Applied Microbiology
Johanna	Arnorsdottir	U Göttingen	Molecular Structural Biology
Gundsambuu	Bartjagal	U Göttingen	Human Genetics
Susanne	Behrens	U Göttingen	Molecular Genetics and Preparative Molecular Biology
Heiko	Blaser	MPI bpc	Germ Cell Development
Susanne	Brandfass	MPI bpc	Biochemistry and Cell Biology
Gabor	Bunkoczi	U Göttingen	Structural Chemistry
Dmitry	Cherny	MPI bpc	Molecular Biology
Maike	Claußen	U Göttingen	Developmental Biochemistry
Vlad	Cojocaru	MPI bpc	Molecular Biology
Patrick	Collombat	MPI bpc	Molecular Cell Biology
Heinz-Jürge	Dehne	MPI bpc	Biochemistry and Cell Biology
Uwe	Deppenmeier	U Göttingen	General and Applied Microbiology
Arvind	Dev	U Göttingen	Human Genetics
Maria	Doitsidou	MPI bpc	Germ Cell Development
Birgit	Drabent	U Göttingen	Biochemistry
Claudia	Ehlers	U Göttingen	Schmitz-Streit
Armin	Ehrenreich	U Göttingen	General and Applied Microbiology
Yvonne	Fondufe	MPI bpc	Molecular Biology
Ole	Fütterer	U Göttingen	General and Applied Microbiology
Jens	Gruber	MPI bpc	Biochemistry and Cell Biology
Sabina	Häder	MPI bpc	Molecular Developmental Biology
Nicole	Happel	U Göttingen	Molecular Biology
Klaus	Hartmuth	MPI bpc	Cellular Biochemistry
Gudrun	Heim	MPI bpc	Molecular Biology
Gerrit	Hennecke	U Göttingen	Molecular Genetics and Preparative Molecular Biology
Stefan	Höning	U Göttingen	Biochemistry
Wofgang	Hoyer	MPI bpc	Molecular Biology
Lukasz	Jaroszynski	U Göttingen	Human Genetics
Muhammed	Kashif	U Göttingen	Human Genetics
Berthold	Kastner	MPI bpc	Cellular Biochemistry
Christina	Kiecke	U Göttingen	Biochemistry
Thomas	Kietzmann	U Göttingen	Biochemistry
Hyun-Jin	Kim	MPI bpc	Developmental Biology
Reinhard	Klement	MPI bpc	Molecular Biology
Jürgen	Kohlhase	U Göttingen	Human Genetics
Harald	Kolmar	U Göttingen	Molecular Genetics and Preparative Molecular Biology
Wilfried	Kramer	U Göttingen	Molecular Genetics and Preparative Molecular Biology
Sven	Krappmann	U Göttingen	Molecular Microbiology and Genetics
Jens	Krull	MPI bpc	Molecular Cell Biology

Frank	Kube	U Göttingen	Biochemistry
Heon-Jin	Lee	U Göttingen	Human Genetics
Dirk	Lennartz	MPI bpc	NMR Based Structural Biology
Manu	Li	U Göttingen	Human Genetics
Diane	Lidke	MPI bpc	Molecular Biology
Susanne	Loop	U Göttingen	Developmental Biochemistry
Sharif	Mahsur	MPI bpc	Molecular Cell Biology
Christian	Merz	MPI bpc	Cellular Biochemistry
Sven	Meyer	U Göttingen	Biochemistry and Bioorganics
Annette	Müller	U Göttingen	Molecular Biology of Livestock
Tine K.	Nielsen	U Göttingen	Molecular Structural Biology
Stephanie	Nottrott	MPI bpc	Cellular Biochemistry
Elke	Oetjen	U Göttingen	Molecular Pharmacology
Stefan	Pabst	MPI bpc	Neurobiology
Jianhe	Peng	U Göttingen	Biochemistry
Ina	Pfeiffer	U Göttingen	Molecular Biology of Livestock
Dietmar	Riedel	MPI bpc	Neurobiology
Markus	Rudolph	U Göttingen	Molecular Structural Biology
Andrea	Rüger	U Göttingen	Biochemistry
Tomasz	Rzymski	U Göttingen	Human Genetics
Peyman	Sakhaii	MPI bpc	NMR Based Structural Biology
Victor	Sanchez-Pedrega	MPI bpc	NMR Based Structural Biology
Henrike	Schieferdecker	U Göttingen	Biochemistry
Bernhard	Schmidt	U Göttingen	Biochemistry
Hans-Dieter	Schmitt	MPI bpc	Molecular Genetics
Ulli	Schmoldt	U Göttingen	Molecular Genetics and Preparative Molecular Biology
Thomas R.	Schneider	U Göttingen	Structural Chemistry
Christina	Schütte	MPI bpc	Neurobiology
Christina	Schütte	MPI bpc	Molecular Biology
Katayoon	Shirneshan	U Göttingen	Human Genetics
Holger	Stark	MPI bpc	Cellular Biochemistry
Wolfgang	Streit	U Göttingen	General and Applied Microbiology
Mladen	Tzvetkov	U Göttingen	General and Applied Microbiology
Darius	Vainius	MPI bpc	Molecular Biology
Oliver	Valerius	U Göttingen	Molecular Microbiology and Genetics
Laurent	Verdier	MPI bpc	NMR Based Structural Biology
Dennis	Wegener	U Göttingen	Molecular Genetics and Preparative Molecular Biology
Dirk	Wenzel	MPI bpc	Neurobiology
Lars	Wittler	MPI bpc	Developmental Biology
Markus	Zweckstetter	MPI bpc	NMR Based Structural Biology
Daniel	Zwilling	MPI bpc	Molecular Biology

Index

Imprint

Publisher: Coordination Office Molecular Biology of the Georg August University Göttingen

Text: Dr. S. Burkhardt
Dr. D. Wegener

Cover Design: Rothe Grafik

Page Layout: VIRTUALabs (M. Nolte)

Photographics: E. Dierßen
Reprostelle MPI bpc (P. Goldmann)