

Priv.-Doz. Dr. Ralf Dressel

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Dr. Ralf Dressel is a research group leader in the Department of Cellular and Molecular Immunology, University of Göttingen. He studied medicine in Göttingen and Oxford. In 1996 he started to work with Prof Dr. E. Günther (1941-2004) in the Collaborative Research Center „Malignant transformation and tumor progression“. After completing his MD thesis in 1997 Dr. Dressel was until 2004 a research assistant in the Division of Immunogenetics at the University of Göttingen.

The group of Dr. Dressel focusses on the function of genes located in the major histocompatibility complex (MHC). The MHC has a central role in the development of an immune response. The so-called class I and class II genes control the antigen-specific adaptive immune response. The MHC contains in addition more than 120 other genes. Some of these genes also contribute to the control of innate and adaptive immune reactions. The MHC is a medically highly relevant genomic region, since numerous MHC disease associations are known. The studies employ molecular biology, cellular immunology, and animal experimentation (including rat and mouse tumour models, TCR transgenic and immunodeficient mice).

The research group studies the role of the MHC in allogeneic stem cell transplantation in rat and mouse models. Special attention is given to the function of heat shock protein (HSP) 70 in the immune system. Two genes for the stress-inducible HSP70 are encoded in the MHC. The research deals with the effect of HSP70 on the susceptibility of tumor cells to CTL-mediated cellular cytotoxicity, the role of HSP70 for tumorigenicity and immunogenicity of tumor cells and stem cells, as well as the function of HSP70 in HIV/SIV infection. Furthermore, research projects on the effector functions of cytotoxic cells, especially in the granula-exocytosis pathway, are carried out.

The current projects are funded by the EU (Marie Curie Research Training Network TRANS-NET), DFG (DR394/2-3, GRK1034), BMBF (NGFN-2), and the „Gesellschaft für AIDS-Forschung“.

Dr Dressel is regularly involved in the teaching programs for Immunology and Human Genetics provided for medical students as well as for biology students at the University of Göttingen. He was tutor in the International Göttingen MSc/PhD program on Molecular Biology and he is actively teaching in a BSc/MSc/PhD program on Molecular Medicine. In addition, he is scientific member of the Göttingen „graduate college pharmaco genomics“ (<http://www.gcpdg.de/>).

The Research Group includes

Sara Demiroglu, PhD student
Leslie Elsner, technician
Vijayakumar Muppala, PhD student

Dr. Peter Novota, PhD, experienced researcher - Peter Novota is working within the TRANS-NET consortium on a rat-model of the skin explant assay. He is profiling the expression of MHC genes with a special custom microarray.

Collaborators include

Priv.-Doz. Dr. Lutz Walter who is head of the Primate Genetics in the German Primate Center Göttingen. He is a biologist working on the genetics, genomics, evolution and function of the major histocompatibility complex of the rat and non-human primates. When he was together with Dr. Dressel in the Department of Immunogenetics at the University of Göttingen he was responsible for the physical mapping of the total rat MHC which was the basis for the recently completed genomic sequence of this region. Dr. Walter and Dr. Dressel continue to collaborate closely in several projects.

Related publications include

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- Müllenbach E, Walter L, Dressel R (2006) A novel discoidin domain receptor 1 (Ddr1) transcript is expressed in postmeiotic germ cells of the rat testis depending on the major histocompatibility complex haplotype. *Gene* (in press).

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Prof. Dr. Heike Bickeböller, MSc, Ph.D. Chair, Department of Genetic Epidemiology, Director of the Centre for Informatics, Statistics and Epidemiology, Medical School, Georg-August-University of Göttingen, Germany.

Biosketch: Heike Bickeböller received a Fulbright scholarship in 1985/1986 to study Statistics at the University of Washington, Seattle, USA, where she received a M.Sc. in Statistics in 1986. After returning to Germany she received a high school teaching degree in Mathematics and Physics from the University of Düsseldorf in 1988. She joined the Ph.D. program in Statistics at the University of Washington, Seattle, USA, and graduated in 1993 with the thesis on "The Poisson Clumping Heuristic and the Survival of Genome in Small Pedigrees" under the supervision of Elizabeth Thompson. During her Ph.D. she received the Sarah Denny Fellowship given for "leadership role in the TA (teaching assistant) community". From 1994-1995 she joined the group of Françoise Clerget-Darpoux at the INSERM unit for Genetic Epidemiology in Paris, France, as a post-doctoral fellow. From 1996-1999 she was head of the subunit "Statistical Genetics" at the Institute of Medical Statistics and Epidemiology, Technical University of Munich, where she received the "Habilitation", a German way of qualification for professorships with research mainly on transmission / disequilibrium tests. From 1999-2001 she was head of the unit "Genetic Epidemiology" at the Institute of Epidemiology, GSF – National Research Center for Environment and Health. Currently she is head of the Department of Genetic Epidemiology at the Medical School of the University of Göttingen, Germany. This department was founded in October 2001.

She served in the genetic epidemiology and also in the biostatistics international societies, such as serving for the International Genetic Epidemiology Society (IGES) as a board member and hosting the 2001 IGES meeting in Garmisch, Germany and serving in the editorial advisory board of the International Biometric Society. Currently she is on the Genetic Analysis Workshop (GAW) advisory board. The Genetic Analysis Workshops (GAWs) are a collaborative effort among genetic epidemiologists to evaluate and compare statistical genetic methods.

Department: Founded in September 2001 as the first ever independent university institute in its field in Germany, the Department of Genetic Epidemiology of the Faculty of Medicine and University Hospital of the Georg-August-University Göttingen is the newest department in the interdisciplinary Centre for Statistics, Informatics and Epidemiology. Furthermore, the department is also a member of the inter-faculty Centre for Statistics of the University. Headed by Prof. Dr. Heike Bickeböller, the department currently employs 6 scientific staff, 4 technical staff and 2 student assistants.

Research, Teaching: Research in the department focuses on the investigation into the influence of genetics on complex diseases and the development of statistical methods for these investigations. The aim is to improve our understanding of the effect of the genetic make-up of individuals on the origin of a disease, its course, prognosis and treatment, as well as the interplay with environmental factors such as smoking for example. Research is being carried out for instance into cardiovascular disease and diseases of the nervous system within the National Genome Research Network (NGFN) involving numerous co operations. Not only does the department cover the classical field of epidemiology, it also has an important role to play in clinical research. Graft vs. host disease is especially interesting since it involves two genomes instead of one as in other complex diseases.

Within the framework of a major nationwide initiative funded by the Federal Ministry of Education and Research (BMBF), the Department of Genetic Epidemiology in Göttingen is the site of one of the six national Centres of Excellence for Genetic Epidemiological Methods (GEM). In close interdisciplinary co operation with each other and the specific project coordinators, the GEMs oversee and provide advice for all epidemiological and statistical aspects for projects particularly relevant to the field of medicine. In this context we are also supporting TRANSNET as the biostatistics and bioinformatics platform.

Besides teaching at her university Prof. Bickeböller also provides training on a German as well as a European level for both genetic epidemiology in detail as well as issues on study design for large collaborative efforts.

The Research Group includes

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Albert Rosenberger, Mag. Stat. (MSc), researcher, rosenb@gwdg.de

Selected collaborators are

Within the university: Prof. Hasenfuß cardiologist, Prof. Brockmöller pharmacology, Prof. Trümper oncology, Prof. Engel human genetics

National within Germany: Prof. Gasser (Uni Tübingen) neurology, Prof. Wichmann (GSF Neuherberg) epidemiology; Prof. Sybrecht, Prof. Meese (Universität des Saarlandes, Homburg/Saar) internal medicine, human genetics

European: Dr. Jenny Barrett (Cancer Research UK) genetic epidemiology; Dr. Françoise Clerget-Darpoux (INSERM unit for genetic Epidemiology, Paris, France) genetic epidemiology; Prof. Gerd Utermann, Prof. Hans-Jörg Kraft, Prof. Florian Kronenberg (Innsbruck, Österreich) genetics, genetic epidemiology, molecular biology

Non-European: Dr. Kevin Jacobs (Case Western Reserve University, Opal Group, USA) bioinformatics, genetic epidemiology; Dr. George J Papanicolaou (Genometrics Section, Inherited Disease Research Branch, National Human Genome Research Institute, NIH, Baltimore, Maryland, USA) statistics, bioinformatics, genetic epidemiology

For further information about the Department of Genetic Epidemiology visit the web site - <http://www.genepi.med.uni-goettingen.de/>

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