

alumni

DEUTSCHES KREBSFORSCHUNGSZENTRUM



A "Must" on the guided tour for guest scientists: the Heidelberg castle

Dear DKFZ Alumni and Friends,

It was indeed great pleasure to welcome Alumni from many countries to our most important activity this year, the 3rd General Alumni Meeting, held in Heidelberg on June 20/21. Due to a preceding Polish-German Cancer Workshop, the largest delegation from abroad came from Poland, but there were also participants from China, Greece, India, Italy, Japan and the USA, in addition to the German majority. This international composition reflects the ever growing Alumni network of cancer researchers related to the DKFZ. Actually, our Association is rapidly approaching 300 inscribed members, and addresses more than 900 Alumni all over the world.

Abstracts of the excellent scientific presentations given by Alumni and current DKFZ researchers on "Hormonal and metabolic imbalance in cancer", "Molecular and functional imaging in oncology", and "Cancer drug discovery, development and approval" during the

General Meeting are in the focus of this newsletter, which also contains short reports on the General Assembly and social events of this meeting. In addition, Professor Katarzyna Lisowska (Gliwice) and Dr Hitoshi Nakagama (Tokyo) have contributed their impressions on two bilateral events, namely the Polish-German Workshop and a Japanese-German meeting, both initiated by the Alumni Association and recently conducted in the DKFZ. A Japanese-German DAAD exchange program for students was implemented by two Alumni, namely Professors Toshihisa Ishikawa (Yokohama) and Manfred Schwab (Heidelberg), during the General Alumni Meeting.

Needless to say that the efforts to further internationalize science at the DKFZ go far beyond the activities of the Alumni Association which can only complement this ongoing trend. As documented in this newsletter, Dr John Mendelsohn, President of the University

of Texas M. D. Anderson Cancer Center, and the Management Board of the DKFZ signed a Sister Institution Relationship Agreement on April 25, 2008. The fruit of a longstanding cooperation between different institutions in Israel and Heidelberg, including the DKFZ, the University, the College of Jewish Studies and the City of Heidelberg, was a stimulating symposium on humanities, natural and life sciences, which was held in the frame of the German-Israeli Year of Science and Technology at the DKFZ in the middle of July. This extraordinary event was opened by the German Minister of Research and Education, Dr Annette Schavan, and the Deputy Ambassador of Israel, Ilan Mor. Israel-German cooperation in cancer research is also highlighted in this newsletter by Professor Isaac P. Witz and his student Liat Edry-Botzer. They report on the first winter school for students from both countries in Austria in March 2008.

Finally, I would like to draw your attention to recent appointments and awards to DKFZ scientists and Alumni, to the description of lab and life in Heidelberg by a current guest researcher, a report on a visit of guest scientists to the global chemical company BASF, and reflections on attractive summer festivals at the DKFZ and in the Heidelberg region.

With best wishes from Heidelberg,

Peter Bannasch

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cooperation

Transatlantic Alliance Against Cancer by Ursula Schöttler

The long-standing relationship among researchers of the German Cancer Research Center and the University of Texas M. D. Anderson Cancer Center (MDACC), Houston, which dates back more than 15 years was recently formalized: On April 25, 2008, Dr John Mendelsohn, MD, President of MDACC, Professor Otmar D. Wiestler and Dr Josef Puchta from the DKFZ Management Board signed a Sister Institution Relationship Agreement of both institutions at DKFZ.



Exchange between members of the new sister institutions: Prof. John Mendelsohn and Prof. Radhe Mohan (second left), both of the MD Anderson Cancer Center, discuss scientific approaches of mutual interest with Prof. Otmar Wiestler (left) and Prof. Peter Kramer (far right) of the DKFZ.

“The German Cancer Research Center is an outstanding partner that contributes state-of-the-art science and technology and exceptional faculty to our mission to eradicate cancer”, said Dr Mendelsohn. “The synergy of our respective programs presents considerable opportunities to further accelerate the process of bringing promising cancer therapies from the laboratory bench to the patient’s bedside”. DKFZ now is one of 17 sister institutions of the MDACC, which only recently was re-elected America’s No. 1 cancer hospital.

The research agreement was preceded by two joint workshops, one in Houston in November 2006, and the second in Heidelberg, right on the day of the signing ceremony. The first workshop at MDACC in Houston resulted in two ongoing collaborative projects in molecular genetics and imaging of cancer with seed-funding from both sides.

During the second meeting in Heidelberg faculty of both institutions featured presentations on various topics, including genetic and epigenetic changes in tumor cells as possible prognostic

predictors, particularly in brain tumors. The program also encompassed aspects of functional magnetic resonance imaging in oncology, approaches to image-guided minimal invasive surgery and the use of proton and carbon ions in



The lecture of Prof. Uwe Oelfke (second from right) on characteristics of proton and carbon ions respectively, stimulated further discussion in the coffee break.

cancer therapy. Moreover, subjects like systems biology of signalling pathways and new approaches in the treatment of cancer were addressed as well as the potential of oncolytic adenoviruses and stem cells in the therapy of brain tumors. The cooperation will also focus on developing exchange programs in education and training for graduate students and junior scientists. Both institutions will join forces to work collaboratively toward groundbreaking achievements in cancer research and care for the benefit of patients worldwide.



Inauguration ceremony

Excellent conditions for excellent research: In the presence of Dr Annette Schavan, Federal Minister of Research and Education (4th from right), the reconstructed laboratories in the main building of the DKFZ with highly modern facilities as well as the new building for 7 Tesla Magnet resonance imaging (see Alumni Newsletter, issue 1/2008) were opened in an official inauguration ceremony in the middle of July.

visit from japan

Fostering Common Issues of Basic Cancer Research

by Hitoshi Nakagama

On July 10, 2008, a German-Japanese Workshop on Basic Cancer Research was held at the DKFZ Conference Center aiming to establish international collaborative projects between the DKFZ and the National Cancer Center (NCC) in Tokyo, Japan. The idea of this visit originally emerged from conversations among Professor Peter Bannasch, Professor Otmar D. Wiestler, and Dr Setsuo Hirohashi, President of the NCC, and Dr Keiji Wakabayashi, Director of NCC Research Institute (NCCRI). Subsequently, a meeting was coordinated very nicely and considerable efforts were made by both organizations to make the visit successful.

To visit the German Cancer Research Center this summer and to participate in the newly established workshop was a great pleasure for our Japanese delegation from the NCC. The program started with an opening address by Professor Wiestler who gave details on the structure of the DKFZ. I replied the welcome note and presented the history and our current activities at NCC. The workshop consisted of six sessions:

1. Epidemiology;
2. Epidemiology and preventive oncology;
3. Pancreatic cancer;
4. Tobacco control;
5. Mesenchymal involvement in neoplastic development and
6. Genome research and cancer genomics.

Six speakers from DKFZ, one from the Heidelberg University Hospital and six from NCC presented aspects of their current research activities with emphasis on future goals. The vivid discussions during the workshop lasted for more than nine hours. After such dense and fruitful exchange, all participants were happy to move to the restaurant "Liselottenstube" at Heidelberg Castle. There, we were able to fully appreciate the marvelous scenery of the historical

city of Heidelberg, and enjoyed a splendid dinner.

On the second day we had further intensive discussions on future collaboration between counterpart researchers. Individual meetings during lab visits were



During lively plenary sessions and individual lab meetings key topics of collaborative research issues were identified.

scheduled up to the early afternoon. Then, a panel discussion was held to summarize the results of the workshop. Professor Bannasch first expressed his appreciation for the success of this first DKFZ-NCC Workshop, and emphasized the excellent presentations throughout the meeting. I myself took the chance to repeat the importance of identifying common issues of research. All members of our Japanese delegation proposed specific possibilities for collaborative projects with their German counterparts, and Professor Wiestler welcomed the project ideas. He also emphasized that key topics should be established to foster continued cooperation. Afterwards, facilitation of exchange programs for junior scientists and postdoctoral fellows was discussed. Technical issues of how to nominate and handle project applications were further covered, along with the evaluation process for research

proposals. We also agreed that the topics of the application for "collaborative research 2008" should reflect the topics of the workshop.

At the end of the panel discussion, Professor Wiestler asked us to prepare

a second bilateral meeting in Japan, some time between June and early July of 2009, and suggested to establish a steering committee. The members of the steering committee were tentatively named as follows; Dr Hitoshi Nakagama, Dr Atsushi Ochiai, Dr Tatsuhiro Shibata and Dr Tesshi Yamada from NCC, and Professor Peter Bannasch, Dr Jörg Hoheisel, Dr Margareta Müller and Dr Federico Canzian from DKFZ.

Last, but not least, I would like to thank the organizing members of both sides. This was an invaluable opportunity to exchange scientific information. We are grateful to the DKFZ members, especially to Ursula Schöttler, Coordinator of International Services, for the heartwarming hospitality. I hope that synergistic enhancement of our work will result in opening up new fields in cancer research by mutual efforts and interaction.

Highly pleased with an agreement on further development of collaboration and exchange programs between the DKFZ and the Tokio Institute of Technology supported by the DAAD and JSPS (right to left): Professors Manfred Schwab and Peter Bannasch, Dr Susumu Kajiwasa, Professors Toshihisa Ishikawa and Dieter Keppler, Christina Poehler, Anne Blumrich, Ursula Schöttler, Anna Poetsch.



workshop

DKFZ Goes East by Katarzyna Lisowska

Right before the 3rd Alumni Meeting for the first time a Polish-German Cancer Workshop was held at the DKFZ. Our Polish group of 14 researchers from the Maria Skłodowska-Curie Memorial Cancer Center and Institute of Oncology (CO-I) in Warsaw and its Gliwice branch accepted the invitation to Heidelberg and the DKFZ where we were supposed to present a selection of recent Polish research projects, and at the same time had the opportunity to learn about related projects at the DKFZ.



Something to remember: The Polish researchers highly appreciated the scientific lectures as well as the informal get-together during the coffee break and several attractive social events.

The workshop was opened by Professor Otmar Wiestler who gave an overview on the structure and research activities of the DKFZ. Then Professor Mieczyslaw Chorazy, initiator of the Workshop, and former visiting scientist at the DKFZ, presented a short history of cancer research in Poland.

The attractive program which had been coordinated by Professors Mieczyslaw Chorazy, Piotr Widlak and Peter Bannasch encompassed oral presentations (13 from the Polish, and 8 from the German side) and several topics of mutual interest which stimulated the discussion during the workshop: cellular senescence and response to DNA damage, cellular models of carcinogenesis, epigenetic changes in cancer, mechanisms of apoptosis, gene expression and polymorphisms related to cancer.

A multilateral project financed by the European Union and coordinated by Professor Kari Hemminki (DKFZ) is presently the only one with participation from CO-I (Professor Ewa Grzybowska). Therefore, it is hoped that the workshop will initiate additional fruit-

ful German-Polish research cooperations in the coming years. The next bilateral workshop is scheduled to take place in Gliwice, Poland, in November 2009.

During our visit we learned a lot about the management, recent and future enterprises at DKFZ, its development, about scientific activities and the mode of fighting against cancer. Those who took part in a guided tour through the reconstructed part of the main DKFZ building were impressed by the perfect design and superior laboratory facilities.

All Polish participants greatly appreciated financial support from the DKFZ. We are deeply indebted to Professor Otmar Wiestler for his interest and support, also to Professor Peter Bannasch, Dr Konrad Buschbeck and especially to Elfriede Mang for their cordial help, assistance and hospitality. No doubt, the charm of Heidelberg and the acceptance at the DKFZ, including the evening reception during the Alumni Meeting on Friday highlighted by Mozart's concert for flute and orchestra in G major, will be remembered for years.



Content faces upon the successful workshop: Prof. Mieczyslaw Chorazy, Elfriede Mang and Dr Konrad Buschbeck (from left to right)

review

3rd General Alumni Meeting

In his welcome address the chairman of the Alumni Association, Peter Bannasch, expressed his appreciation for the participation of scientists from various countries at this 3rd General Meeting in Heidelberg, particularly the Alumni from abroad, such as Mieczyslaw Chorazy from Gliwice, Toshi Ishikawa from Yokohama, Daria Kanduc from Bari, Michael Knopp from Columbus/Ohio, Gunter H. Rütter from Washington DC, Constantin Sekeris from Athens, and Qin Su from Beijing, who represented the ever growing worldwide Alumni network of cancer researchers related to the DKFZ.



From left to right: Prof. Gerhard van Kaick and Prof. Heiner Boeing, Prof. Jürgen Wahrendorf and Prof. Rudolf Kaaks, Prof. Qin Su and Rongxi Yang with Prof. Piotr Widlak in the back

Introduction

Peter Bannasch (German Cancer Research Center)

In contrast to the two previous General Alumni Meetings the presentations of scientific highlights by Alumni and current DKFZ scientists were not separated in the program, but linked together as close as possible, resulting in a stimulating exchange of timely topics on a high scientific level. The session on Friday morning was dedicated to "Hormonal and Energetic Imbalance in Cancer". The seminal finding of the "aerobic glycolysis" by Otto Warburg in the twenties of the last century, which had been largely forgotten for several decades, has been reappraised by many authors in recent years. The classical works by Otto Warburg on tumour cell metabolism, which focused on enhanced glycolysis and suppressed oxidative phosphorylation, have been complemented in the meantime by many other aspects of metabolic changes in cancer cells. Many of them are related to alterations in signal transduction pathways which are also involved in various hormonal effects, as discussed in the morning session.

The topic of the afternoon session "Molecular and Functional Imaging in Oncology" was in many respects pertinent to that of the morning session, since metabolic changes in cancer cells play an increasing role in imaging procedures. Former and current scientists of the DKFZ have made important contributions to this field, which is becoming more and more relevant for the cancer patient. On Saturday "Cancer Drug Discovery, Development, and Approval" were discussed by three Alumni who have made outstanding careers in non-academic institutions: Klaus Bosslet (Bayer-Schering, Berlin), Gunter H. Rütter (Monitoring Force Group, Washington D.C.), and Harald Enzmann (Federal Institute for Drugs and Medical Devices, Bonn). The excellent presentations by these Alumni were of great interest for the understanding of a challenging research field which is under-represented in most academic institutions. I am most grateful to all invited speakers for presenting exciting recent findings which will contribute to the progress in cancer research to the benefit of the cancer patient. The content of all invited presentations is outlined in the short abstracts below.

Hormonal and Energetic Imbalance in Cancer

Heiner Boeing (German Institute of Human Nutrition, Potsdam)

Obesity and cancer risk

With the increasing prevalence of obesity in Germany and other countries concerns arose whether this development might counteract other measures to reduce cancer risk. In the most recent evaluation of the expert panel of the World Cancer Research Fund obesity was given a prominent role and a detailed evaluation was conducted regarding general fatness, abdominal fatness and also adult weight gain. The expert panel concluded that there is convincing evidence that risk of adenocarcinoma of the oesophagus, and cancers of the pancreas, colorectum, postmenopausal breast, endometrium and kidney increased with increasing body fatness. Further, they also concluded that abdominal fatness is convincingly related to risk of colorectal cancer. This evaluation is in line with a previous evaluation of an expert panel of the International Agency for Research on Cancer in 2002. Research within the EPIC study provided an even more complex picture of how obesity is associated to cancer risk. The analyses so far clearly revealed that the various indices of obesity have a different meaning in men and women with regard to cancer risk. For example it could be shown that measures of abdominal fatness relate equally in men and women to risk of colon cancer, whereas BMI as a measure of general fatness only related to risk in men. In the presentation, the overall status of the relation of obesity to cancer risk was discussed as well as results from the EPIC study demonstrating gender-specific effects of obesity measures.

Rudolf Kaaks (German Cancer Research Center, Heidelberg)
Excess body weight and cancer risk: Epidemiology and possible mechanisms

A Western lifestyle – characterized by low physical activity, and high dietary intake, animal protein, saturated fats and rapidly digestible carbohydrates – is associated with drastically increased risks of many forms of cancer. Epidemiological observations in-

creasingly suggest that in large part these increases in risk may be related to nutritional energy balance. Excess body weight is associated with increased risks of cancers of the endometrium, breast (postmenopausal women), kidney (renal cell tumours), colon, pancreas and oesophagus (adenocarcinomas). In addition, there is epidemiological evidence for a protective effect of regular physical activity against the development of breast and colorectal cancers, and potentially other tumour types. Overall, it has been estimated that excess weight and lack of physical activity could account for one quarter to half of the occurrence of the above mentioned tumour types. Contrary to the observations among humans on excess energy intake and cancer, animal experiments have shown strong reductions in both carcinogen-induced and spontaneous tumour development under conditions of energy restriction. The mechanisms that may underlie these relationships of nutritional energy balance with cancer development may depend on tumour type. For endometrial cancer and postmenopausal breast cancer, substantial epidemiological evidence implies a central role, particularly, for increased exposure to endogenous estrogens, which are increased among more obese women. Among premenopausal women, development of ovarian hyperandrogenism (polycystic ovary syndrome) is a frequent phenomenon that is related to obesity and hyperinsulinaemia, and is also associated with an increased risk of endometrial cancer, probably because of reduced ovarian progesterone synthesis.

Besides the sex hormones, alterations in the metabolism of insulin and/or insulin-like growth factors (IGFs) are increasingly being implicated as possible metabolic links between nutritional energy balance and cancer development. Epidemiological studies have shown increased risks particularly of colon cancer and endometrial cancer among women and men with high fasting and non-fasting plasma insulin concentrations. Likewise, elevated plasma concentrations of IGF-I have been related to increased risks of cancers of the prostate, breast and colorectum. Finally, quite independently of adiposity, higher plasma glucose levels (fasting and post-load) have also been associated with increased risks of cancers of the pancreas, liver and endometrium, in particular, but also of colon and breast.

Sex hormones play a key role in several tissue types in the regulation of cellular differentiation and/or growth and proliferation. Insulin and IGF-1 both stimulate anabolic processes as a function of available energy and elementary substrates (e.g. amino acids), and it is hypothesized that the anabolic signals by insulin or IGF-1 can promote tumour development by inhibiting apoptosis, and by stimulating cell proliferation. Besides extracellular growth signals, however, there is strong experimental evidence that intracellular energy sensing mechanisms also play a key role in controlling cell growth, proliferation and apoptosis. Gaining a better understanding of the mechanisms relating excess weight and physical inactivity to cancer may lead to improved strategies for both cancer prevention and treatment.

Frank Dombrowski (University of Greifswald)
Experimental hormonal hepatic and renal carcinogenesis

The decisive role of metabolic changes in hepatic and renal carcinogenesis has been demonstrated in several animal models. Rats rendered diabetic by genotoxic (i.e. streptozotocin) or non-genotoxic (immunological) mechanisms received intrahepatic transplants of pancreatic islet cells, and were studied sequentially for up to two years. In additional experiments, ovarian fragments were transplanted into the livers of ovariectomized rats.



*Prof. Doris Mayer,
Prof. Frank Dombrowski*

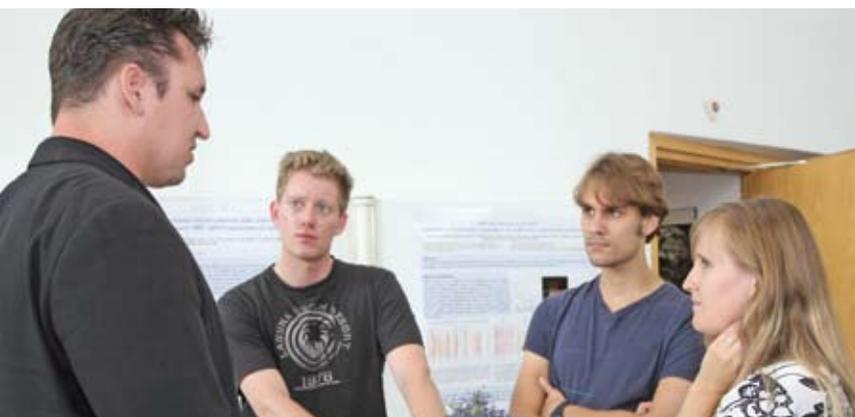
Preneoplastic foci of altered hepatocytes and hepatocellular neoplasms, including hepatocellular carcinomas, regularly developed in diabetic rats after islet cell transplantation due to a combined action of hyperinsulinism and hyperglycemia. Under these conditions, hepatocarcinogenesis is primarily triggered by increased insulin signaling via pathways associated with cell growth and proliferation, such as the Ras-Raf-mitogen-activated protein kinase pathway and the IGF system, and secondarily involves other growth factors, such as TGF- β . In humans suffering from diabetes mellitus, an increased risk of hepatocellular neoplasms has been repeatedly reported.

In ovariectomized rats carrying intrahepatic ovarian fragments, initially adaptive preneoplastic alterations in hepatocytes developed downstream of the transplanted ovarian fragments, and often progressed to hepatocellular adenomas and carcinomas after long lag periods, indicating a strong hepatocarcinogenic potential of high local levels of endogenous estrogens in the rat liver. In human diabetes mellitus, an increased risk of renal cell carcinoma has been well documented. We, therefore, examined the influence of hyperglycaemia and glucose lowering treatment on nephrocarcinogenesis in diabetic rats. Preneoplastic and neoplastic renal cell lesions frequently emerged under the experimental conditions chosen. Nephrocarcinogenesis in diabetic rats appeared to be due to sustained hyperglycemia, resulting in an adaptive metabolic response, altered growth factor signalling and subsequent neoplastic transformation of the tubular epithelial cells starting with glycogenotic (clear cell) tubules well known from human pathology as Armanni-Ebstein-lesions. Initially, these tubular lesions apparently represent an adaptive response giving rise to preneoplastic and neoplastic alterations later on.

Stephan Herzig (German Cancer Research Center, Heidelberg)
Imbalance in energy metabolism: gene regulation and signaling

Healthy energy homeostasis requires the tightly controlled communication between distinct tissues and hormonal pathways, directing energy substrate flows and usage in response to changing environmental conditions. Energy homeostasis ranges from energy surplus (e.g. obesity) to wasting (e.g. cachexia). Despite contrary energetic states, energy overload and wasting share major phenotypical features, such as hepatic steatosis and insulin resistance, and both have been characterized as chronic inflammatory conditions. Recent progress on novel transcriptional

review



left:
Dr Stephan Herzig
surrounded by
highly attentive
"disciples"

right:
Prof. Heinz-Peter
Schlemmer, Prof.
Hans-Ulrich
Kauczor

and signaling pathways in opposing states of energy homeostasis were discussed and connected to the pathologies of aging-associated diseases, such as the metabolic syndrome and cancer cachexia.

Doris Mayer (German Cancer Research Center, Heidelberg) *Interaction between the insulin/IGF axis and estrogen receptor in breast cancer*

Coexpression of estrogen receptor- α (ER α) and IGF-I receptor / insulin receptor substrate-1 in human breast cancer suggests a functional interaction of the insulin/IGF axis and ER α . The nuclear receptor and transcription factor ER α regulates the expression of IGF axis proteins such as IGF-IR, IRS-1 and IGF, leading to increased protein levels and sensitizing of breast cancer cells to growth factor stimulation, which eventually result in increased cell proliferation. Stimulation of IGF-IR results in activation of two signalling pathways, the MAP kinase pathway and the phosphatidylinositol 3-kinase / Akt/PKB pathway. Protein kinases related to these pathways are known to phosphorylate serine residues in the AF-1 domain of ER α . These phosphorylation reactions modulate both ligand-dependent and ligand-independent ER α activity. Synergistic effects of estradiol and IGF-I on ER α activity have been described. Detailed analysis of the role of the Akt/PKB-pathway in ligand-dependent ER α activation showed that treatment of ER α -positive cells with estradiol results in rapid phosphorylation and thereby activation of Akt/PKB which in turn phosphorylates, i. e. inactivates glycogen synthase kinase-3 (GSK3). GSK3 was identified and characterized as a key regulator of ER α stability and function.

Molecular and Functional Imaging in Oncology

Michael V. Knopp (Ohio State University, Columbus) *Evolving imaging as a biomarker resource in oncology and therapy assessment*

Non invasive, pathophysiology-based assessment of disease characteristics and extent as well as biologic effects of therapeutic approaches are more essential in oncology than ever before. Our advances in identifying molecular pathways and disease biology are leading to highly targeted therapeutic approaches that require a non-invasive mapping of disease homo- or heterogeneity as well as a timely assessment of biologic response that can not be sufficiently described by purely morphologic, structural, size based methodologies such as the current RECIST criteria. Therefore, func-



tional and molecular imaging methodologies are being and have to be developed and validated as quantitative markers of biologic activity.

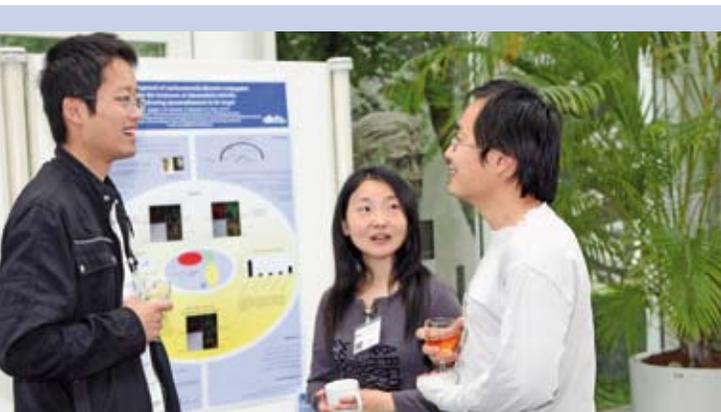
Integrating different biomedical imaging approaches in multimodal or hybrid imaging is rapidly advancing the ability of imaging to serve as true biomarkers. Current developments focus on consistent translational approaches from preclinical to clinical thereby enabling consistent use of imaging in drug development, clinical trials and patient care disease assessment. For imaging to fully serve as a biomarker resource, a complete and consistent chain of many technological components including the probe, device, procedure, visualization, quantification, interpretation and communication have to be validated. These ongoing efforts are rapidly further evolving the utilization of imaging in oncology.

Heinz-Peter Schlemmer (University of Tübingen) *Metabolic imaging by MR and MR/PET*

Early tumor detection and accurate tissue characterization is fundamental in oncology for achieving best therapeutic success. Accurate assessment of tissue properties requires simultaneous co-registration of morphologic and metabolic information including e.g. cell density, proliferation, metabolism as well as tissue perfusion, microvessel density, vessel leakage, etc. Magnetic resonance imaging and spectroscopy (MRI and MRS) enable a non-invasive observation of manifold morphological, metabolic and functional parameters with high spatial and temporal resolution. Positron emission tomography (PET) furthermore adds cell specific information about metabolism and receptor density. Recently, a novel technology enabling simultaneously MR/PET imaging has become feasible and opens up a new window for so called "molecular imaging". Decisive progress in tumor detection and therapy planning as well as monitoring can be anticipated.

Uwe Haberkorn (German Cancer Research Center and University Hospital, Heidelberg) *Molecular imaging of tumor metabolism and apoptosis*

Altered metabolism has been found to be one of the most prominent features of malignant tumors. This property led to the development of tracers for the assessment of glucose metabolism and amino acid transport and their application for tumor diagnosis and



During the poster session scientists used the chance to exchange information on individual research projects.

Poster Session and Awards

The poster session on Friday attracted many scientists and initiated vivid discussions. The presentations were often closely related to the topics of the scientific sessions on Friday. An international jury consisting of Dirk Breitzkreutz, Peter Huber, Toshi Ishikawa, Michael Knopp, Marion Schmidt-Zachmann and Piotr Widlak and chaired by Petra Boukamp and Gerhard van Kaick selected five outstanding presentations to be awarded prizes of 250 or 500 Euros (see list below). We express our gratitude to all colleagues presenting posters, cordially congratulate the awardees, and appreciate the very careful and knowledgeable evaluation by the members of the poster committee.

Julien Dinkel et al., DKFZ, Heidelberg

Respiratory-induced prostate motion: quantification and characterization in 4D-MRI

Dorothee Funk et al., DKFZ, Heidelberg

Development of corticosteroid-albumin-conjugates for the treatment of rheumatoid arthritis: delivering dexamethasone to its target

Peter Mayer et al., BfArM, Bonn

Different gene expression patterns in HepG2 cells in nodular growing tumors and in culture

Eva-Maria Nothelfer et al., DKFZ, Heidelberg

Structure analysis and binding properties of HBP-1, a HNSSC specific peptide

Alexa Schieck et al., DKFZ, Heidelberg

Identification of the determinant of hepatitis B virus liver tropism and its implications for hepatocyte-specific drug targeting

staging. Prominent examples are fluorodeoxyglucose, methionine and tyrosine analogs which have found broad clinical application. Since quantitative procedures are available, these techniques can also be used for therapy monitoring. Another approach may be based on the non-invasive detection of apoptosis with tracers for phosphatidyl-serine presentation and/or caspase activation as a surrogate marker for therapeutic efficacy. Finally, the evaluation of hypoxia with nitroimidazoles may be a valuable tool for prognosis and therapy planning.

Christian Plathow (University of Freiburg)

PET/CT in Oncology

Anatomic imaging techniques such as computed tomography (CT) and magnetic resonance imaging (MRI) have been used for many years in clinical oncology. The emergence of positron emission tomography (PET) more than a decade ago was a major breakthrough in the early diagnosis of malignant lesions, as it was based on tumor metabolism and not on anatomy. Since the first proof-of-concept combined PET and CT system started to operate in 1998 and the first worldwide clinical PET/CT scanner came into operation in March 2001, PET/CT has developed into the fastest growing imaging modality worldwide, according to the industry, with more than 1000 new systems installed in 2007. PET/CT with ¹⁸F-FDG is increasingly being used for staging, restaging and treatment monitoring for cancer patients with different types of tumor (lung, breast, colorectal, lymphoma, melanoma, head and neck etc.). At many institutions, PET/CT has replaced separately acquired PET and CT examinations for many oncologic indications.

The success of PET/CT imaging is based on several features. Firstly, patients benefit from a comprehensive diagnostic anatomical and functional (molecular) whole-body survey in a single session, including the early prediction of tumor response. Secondly, PET/CT provides more-accurate diagnostic information than PET or CT alone. Thirdly, PET/CT imaging allows radiation oncologists to use the functional information provided by PET scans for radiation treatment planning.

In this presentation an overview of PET/CT in oncology was given. Basics in the imaging of tumor cell metabolism and PET/CT were presented and its future potential was discussed.

Cancer Drug Discovery, Development, and Approval

Klaus Bosslet (Bayer Schering Pharma, Berlin)

Overview about the development of targeted cancer drugs

Targeted cancer drugs can be subdivided in four categories:

- 1: Hormone receptor antagonists as the first targeted drugs approved in cancer treatment
- 2: Delivery forms of chemotherapeutic drugs (Abraxane etc.)
- 3: Antibody-mediated delivery of cytotoxics, cytokines etc.
- 4: Small molecules which interfere with receptors/enzymes playing an important role in the pathomechanisms of cancer

The presentation focused on category 4 and described the obstacles industry is confronted with in the development of small molecule targeted cancer drugs.

The major challenge in targeted cancer drug development is the high attrition rate during the R+D process resulting in a five percent probability of success if a cancer compound has entered clinical phase I studies. In addition to unexpected adverse events or so called "off target" effects, the molecular and phenotypic heteroge-

review



left: neity of the tumor mass is another major factor contributing to the high attrition rate. Efforts to optimize cancer drug development are focused around three critical topics:

right:
Dr Gunter H. Rütter,
Dr Harald Enzmann,
Dr Fritz Klimek

- 1: Selection and validation of high quality target structures for drug intervention
- 2: Medicinal chemistry efforts are strengthened to deliver compounds with good solubility and favourable pharmacokinetic
- 3: Emphasis is put on pharmacodynamic and patient stratification markers allowing determination of the optimal compound dose and finding the patients who have a high probability to respond to the developed compound.

The challenge to the pharmaceutical industry in targeted cancer drug development is not only to discover the right compound, which is able to interfere with the anticipated pathomechanism within the cancer cell, but also to deliver the biomarkers which identify the patient population which may have benefit from the treatment.

There is a good probability that the combined efforts in target identification and validation in medicinal chemistry and biomarker research will help to reduce attrition rates increasing the success rate of future targeted drug development.

Gunter H. Rütter (Monitoring Force Group, Washington, DC)
Interfacing industry and university – Challenges and opportunities of contract research when running (global) clinical trials

Research and development in the pharmaceutical industry was managed entirely in-house 30 years ago. Economic pressure and increasing competition in a global market led to an outsourcing process which nowadays exceeds 30 percent of an estimated global drug R&D volume of 60 billion US Dollars. As only 1 of 10,000 patented newly invented (synthesized) or discovered (natural) compounds makes it to the market, the costs of selection and development of one new drug mount over a period of 8 to 15 years up to one, sometimes two billion US Dollars. Contract Research Organizations (CROs) have correspondingly grown, and provide the full range of drug research and development services meanwhile. Pharmaceutical companies only use their R&D staff for their own pipeline which regularly shows discontinuous workload. CROs can operate their staff to capacity and balance workload more efficiently by working for a number of pharmaceutical companies. Despite



the general rule that pharmaceutical companies keep the core competence for drug development in-house, there is a drain of expertise to the CROs. This is not always an advantage as sponsors increasingly tend to have unrealistic expectations in expense and time requirements of a drug development project such as a clinical trial. The pressure by financial performance expectations of listed stock companies or their investors does not always correspond with the complexity and the requirements of clinical research and development projects, their lead time and their expenses needed due to GCP quality guidelines. Thus, the chain of pressure has reached the CROs. This is especially evident in western countries where hospitals are often rather busy with clinical trials. Special challenges occur with running global clinical trials in emerging markets such as EEC and Asia. Intercultural challenges require special skills when efficiency expectations of western industrial sponsors collide with sensitivities of investigator sites in regional hospitals and universities.

Harald Enzmann (Federal Institute for Drugs and Medical Devices, Bonn)

Marketing approval – the final challenge

In the European Union medicinal products may get marketing approval by different procedures on national or European levels. For innovative antineoplastic products, the centralized procedure is mandatory. Marketing approval is granted by the European Commission, but is based on the scientific assessment and the recommendation of the Committee for Human Medicinal Products (CHMP) of the European Medicines Agency (EMA). The procedure of assessment by the CHMP was shortly described. For a positive CHMP opinion, a convincing demonstration of a positive benefit-risk ratio is indispensable. The decision for marketing approval for every medicinal product is based on the assessment of pharmaceutical quality, safety and efficacy. For innovative antineoplastic medicinal products the efficacy is most frequently crucial for the final decision and contributes mostly to the high attrition rate during development. The presentation highlighted current trends, pitfalls and opportunities in the assessment of applications for antineoplastic drugs according to the centralized procedure, including the roles of biomarkers, selection of comparators and endpoints and the question when an effect can be considered as clinically relevant.

excursion

Encounters with Art and Nature

by Elfriede Mang

General Assembly

In connection with the 3rd Alumni Meeting the General Assembly of the Alumni Deutsches Krebsforschungszentrum was held on Saturday, June 21. Professor Peter Bannasch, Chairman of the Board, gave a detailed report on activities of the last two years which included numerous national and international events. At this point, we would like to draw your attention also to our previous newsletters where many of these events have been described in detail. This holds true for many other activities organized for guest scientists and foreign co-workers of the DKFZ.

Two proposals made to the participants of the assembly, namely co-opting an Advisory Board and establishing an Alumni-linked electronic network with "ResearchGATE" (as suggested by Dr Soenke Bartling) for inscribed members of the Association, were unanimously accepted.

The Treasurer, Dr Konrad Buschbeck, gave an overview on the financial developments within the Association. It was generally agreed that the membership fees should be further paid on a voluntary basis. The previously proposed range was confirmed:

- 50 Euro p. a. for senior scientists, emeriti and promoting members
- between 20 and 10 Euro p.a. for junior members.

The current members of the Board, Professor Peter Bannasch (Chairman), Dr Konrad Buschbeck (Treasurer) and Elfriede Mang (Secretary), were unanimously confirmed for another two years. Professor Otmar Wiestler, Chairman and Scientific Member of the DKFZ Management Board, is an ex-officio member of the Board of the Alumni Association. Detailed information for members is available via ResearchGATE.

Elfriede Mang

The third DKFZ Alumni Meeting was not concluded by a boat trip as in previous years. This time we headed for destinations on the wooded hills of Heidelberg, namely the Königstuhl and the Kohlhof.

At about 3 p.m. on Saturday, June 21, we left the DKFZ by bus setting off for the base station of the funicular railway. The sky was blue without any cloud and the temperature reached nearly 30° C. In Heidelberg's old town we made a stop at the beautiful baroque Jesuit Church which was admired especially by the Polish scientists. Then we entered the cable car which after its renovation in 2003 and 2005 is the most modern one in Germany. At the Molkenkur station we changed for the historic cable car, the oldest funicular railway in Germany.

After arrival at the Königstuhl of 567.8 meters altitude we were able to enjoy a magnificent view over Heidelberg and the Neckar valley. On the hilltop one can find the Max-Planck-Institute for Astronomy, the observatory Heidelberg-Königstuhl, the paradise of fairy tales for children as well as several radio and television transmitters. Longing for a cool drink we right away started our walk to the restaurant at the Kohlhof. The name Kohlhof is derived from the work of former charburners.

The way from the Königstuhl to the next destination was quickly covered during vivid discussions on scientific and personal matters. At the restaurant we enjoyed cold refreshments like wheat



beer and mineral water or ice cream. Professor Mieczyslaw Chorazy told some anecdotes and Professor Qin Su recited a Chinese poem which suited well the mood of this relaxed afternoon. Some participants of our excursion visited Pieter Sohl. The well-known artist from Heidelberg and his highly attentive wife welcomed our small group in their beautiful garden and introduced us to a fine selection of impressive paintings and sculptures.

The time passed by much too quickly and finally we had to leave the Kohlhof by bus. After all, on our way back down to the city we got the chance to admire the shimmering leaves of the trees in the evening sun.



guest report

Good Chemistry in Lab and Life by Aubrey Miller

Working as a guest scientist at the DKFZ, I aim to reinvigorate synthetic chemistry by building a medicinal chemistry group. Nevertheless, since I have joined the Cancer Center I have not only been involved in research matters. It has also been a great pleasure to participate in some of the "welcome events" that the Alumni Association has scheduled for new students and post-docs from abroad.

The new medicinal chemistry group is supposed to engage in the laboratory synthesis of complex naturally occurring secondary metabolites that have shown promise in initial biological screens. Presumably, they would benefit from laboratory synthesis and/or chemical modification. Our research team will also function as an integral member of the newly established Preclinical Target Development (PTD) Unit. The PTD has been assembled with special regard to establish collaborations with groups that are involved in promising basic research projects. Moreover, PTD is assigned to perform translational research (e. g. assay development, medicinal chemistry, and biological testing) in order to develop novel cancer therapies.

In early April, it was the first time that I attended a welcome meeting organized by the Alumni Association. There, Professor Thomas Efferth gave an overview of the research going on at the DKFZ and we had an opportunity to introduce ourselves and establish connections with our new colleagues.

Many of us from the welcome meeting then participated, a few weeks later, in an introduction to Heidelberg's Old Town, also organized by the Alumni Association. We took a bus to the University Square and were guided to a fascinating and memorable tour by a very knowledgeable guide. We spent some time in and around the old part of the University before making our way to the Jesuit church, the Holy Ghost church, the old bridge, back to the main market place and eventually up to the castle. Our guide literally was brimming with interesting facts about the history of the city as well as many stories about the people in Heidelberg's history, which I always find the most captivating.



Covered with centuries of poetic graffiti and ashen silhouettes from the "inmates": the "Karzer", i. e. the student jail

The highlights for me were both visiting the Alte Aula, the beautiful lecture hall in the old University building with many carved-wooden features and symbolic paintings, and the student jail, an almost comical location where students were "imprisoned" for breaking the University's rules. The jail, however, was THE place to be if you were a student and appears to have essentially been a never-ending-party. The walls are covered with centuries of poetic graffiti and ashen silhouettes from the "inmates". I also enjoyed learning about the controversial modern stained-glass windows in the Holy Ghost church and the history of the monkey that greets visitors at the entrance to the old bridge.

Unfortunately I was not able to participate in the final leg which included a tour to a brewery with beer-tasting and a pretzel included. However, a colleague who returned a bit, shall we say, happier than when she left assured me that the brewery was excellent...



Aubrey Miller is a U.S. citizen who lives for the first time in Germany. Most recently he was situated in Berkeley, California, where he received his PhD in synthetic organic chemistry and spent a year as a post-doc learning organometallic chemistry.

Previous to the time in Berkeley, Aubrey Miller obtained a Bachelor of Science in chemistry from Stanford University and then worked for six years as a medicinal chemist at Hoffman LaRoche.

His scientific interests lie in the development and synthesis of new anti-cancer substances, particularly those based on natural product molecular scaffolds.

symposium

Science and Culture beyond Frontiers by Ursula Schöttler

An extraordinary occasion for the exchange of science and culture between Heidelberg and Israeli partners turned up in the middle of July: The German Cancer Research Center, the University of Heidelberg, the College for Jewish Studies Heidelberg, and the City of Heidelberg jointly organized a multidisciplinary symposium at DKFZ on Friday, July 18, 2008. The symposium was a major event within the German-Israeli Year of Science and Technology (GIST) 2008 to commemorate the 60th anniversary of the State of Israel.

Dr Annette Schavan, Minister of Research and Education, who opened the symposium, emphasized Heidelberg's key position as a symbol for science and research. Pointing out the importance of continued future cooperation with Israel, she welcomed the three "Young Israeli Scientists", awardees of an annual contest in Israel who had followed the invitation of her Ministry (BMBF) to Heidelberg. In the following greeting address, Ilan Mor, Deputy Ambassador of Israel in Germany referred to Goethe: science and art do not know any barriers of nationality.

Presentations of faculty of the DKFZ, the University of Heidelberg, and the College for Jewish Studies highlighted

College of Jewish Studies gave an excellent overview on Israeli history reflected in Hebrew literature. Exemplifying outstanding results from co-operative studies in human sciences, Professor Fania Oz-Salzberger, University of Haifa, and Professor Thomas Maissen, University of Heidelberg, outlined the relevance of Jewish and non-Jewish thinkers and movements for modern Europe, while Professor Manfred Oeming introduced the latest findings of the Ramat Rahel archaeological project. Professor Ulrich Platt from the University of Heidelberg



presented very interesting results from a joint research project on the atmospheric chemistry at the Dead Sea, considering their impact on worldwide environmental problems.

The over 30 years of successful collaboration in cancer research between different institutions in Israel and the DKFZ were highlighted by two colleagues from the Weizmann Institute of Science,

Dr Amnon Barak, Director of the German-Israeli Foundation for Scientific Research & Development (GIF), emphasized the outstanding activities of researchers in Heidelberg within the funding programs financed by the Foundation. Professor Wolfhard Semmler, German co-ordinator of the DKFZ-MOST co-operation in cancer research, summarized the history and the achievements of the program during the past three decades.

The symposium coincided with anniversary celebrations of 25 years of partnership between the City of Rehovot, hometown to the Weizmann Institute, and the City of Heidelberg. The Lord Mayors of both cities together with a delegation from Rehovot also attended the symposium.

The program and a summary of the presentations are available on the BMBF website "GIST" on www.gist2008.com following "Events and Database" and then either "Calendar", choosing the items "Germany" and "July" for the program, or "Highlights" for the summary.



Prof. Anat Feinberg presented a very interesting talk on Israeli history based on Hebrew literature.

historical aspects of the state of Israel and successful cooperations between researchers from institutions in Heidelberg and in Israel like the Weizmann Institute of Science, the Hebrew University and the Universities of Tel Aviv and Haifa. Professor Anat Feinberg from the



Prof. Benny Geiger addressed the role of cellular adhesion molecules in cancer growth.

namely Professor Benny Geiger who gave the keynote lecture on the involvement of cellular adhesion molecules in cancer invasion and metastasis, and Professor Varda Rotter who reviewed the role of the tumor suppressor gene p53 in apoptosis.



Talking about the impact of liberalism and republicanism on attitudes towards polity, citizenship and liberty, Prof. Fania Oz-Salzberger (left) caught the attention of Prof. Otmar D. Wiestler, Dr Eckart Würzner, Lord Mayor of Heidelberg, Ilan Mor, Deputy Ambassador of Israel in Germany, and last, but not least, Dr Annette Schavan, Minister of Research and Education (from left to right).

education

A Great Blend of Intellectual and Physical Challenges

Impressions by Isaac P. Witz and Liat Edry-Botzer

One of the major objectives of the German-Israeli cooperation in cancer research is to create a spirit of teamwork and partnership between German and Israeli scientists. This was indeed achieved and a long lasting alliance between senior cancer researchers from both countries does in fact exist. Along with this tradition a winter school for students from the DKFZ and from Israeli universities proved to be a valuable instrument as well.

During a 4-day stay in Pichl, Austria, in early March 2008 senior scientists from Germany and Israel shared their experience and knowledge with eager young researchers. This newly established activity contributed significantly to strengthen and deepen the scientific ties between colleagues from both countries.

“I was privileged to be invited to introduce the domain of ‘Tumor Microenvironment’ to the participants and also to talk about a research project performed in my lab”, says Isaac P. Witz, Professor of Immunology at Tel Aviv University, and adds how much he enjoyed the lively discussion following his presentation and those of his colleagues where he sensed the curiosity of the students to novel ideas and facts. Liat Edry-Botzer, a student from his lab, affirms this: “This



After the lectures in the morning everyone enjoyed the marvelous scenery with snowy mountains which was the perfect setting for skiing. This and many other extracurricular activities further contributed to the consolidation of new contacts between young scientists.

The Pichl winter school can be regarded as a great blend of both intellectual and physical challenges. The program of the school was thoughtfully outlined as to accommodate lectures in the morning and in the late afternoon with a long recess for a variety of extracurricular activities, mainly skiing. “We enjoyed the outstanding facilities of the Pichlmayrgut hotel and the ski resort nearby”, says Liat. This created the right circumstances and atmosphere to get familiar with young scientists from Germany, which have become friends and colleagues. A typical example was that of Christiane Meyer, a student from DKFZ, and Liat: “We did not know each other before, but now keep friendly contacts”. Not only personal relations were initiated in Pichl, states Isaac P. Witz. He knows of at least one collaborative project that was conceived during the winter school between a research team at DKFZ and one at an Israeli university.

The winter school in Pichl clearly demonstrated that such undertakings are worthwhile and should be continued: “As one of the participants I hope the winter school will become a traditional scientific event which we all could attend in the future”, says Liat.

Both, Isaac P. Witz and Liat, expressed their sincere gratitude to Professor Thomas Efferth and Professor Wolfhard Semmler for the initiative and for inviting them to this challenging, pleasant and gratifying experience, as this event undoubtedly strengthened the collaboration between Germany and Israel.



Venue of the Winter School

Appreciation was also addressed to Elfriede Mang for her dedication to the German-Israeli Cooperation in Cancer Research and her valuable contributions to the success of the winter school.



“Non scholae sed vitae” seemed to be the motto during the evening in a cosy ski lodge.

was definitely an extraordinary scientific experience. The scientific program was very well balanced with lectures on different aspects of cancer research. As such, it was a great opportunity to broaden my knowledge”.

AACR Meetings 2008 and 2009

At the Reception for DKFZ Alumni during AACR 2008 in San Diego participants from DKFZ and DKFZ Alumni presently working in the USA decided to start an initiative for building up an **American DKFZ Alumni Club** and network. We were glad to accept the nomination by the Board of the Alumni Association, approved by the General Assembly 2008, to serve as voluntary coordinators of this Alumni Club. It was agreed that our task would be to contact colleagues who have done research at or are in active scientific cooperation with the DKFZ in Heidelberg and invite them to join the club and spread the word to others.

The forthcoming 100th Annual Meeting of AACR in Denver, Colorado, on April 18-22, 2009, appears to be an ideal opportunity to formally found the club. We, therefore, cordially invite you to participate in a **Reception by the DKFZ Alumni Association on Monday, April 20, from 6.00 pm to 8.00 p. m.** The exact place of the reception during AACR 2009 will be communicated by email in due time.

The club to be founded can set goals to identify and unite all who have profited from the research at DKFZ. This may include the continuation of the links to and cooperation with the DKFZ, and most importantly the spreading of information to young talented scientists in the USA encompassing both the excellent research possibilities at the DKFZ and suggestions on host laboratories and institutions in the USA to German colleagues.

We would be happy if you attended the reception on April 20 in Denver, Colorado, and joined in the creation of the club and network. You can contact us with your names, addresses and good suggestions.

*Prof. Michael Knopp, Columbus, Ohio
email: knopp.16@osu.edu*

*Dr Ilia Toshkov, Buffalo, New York
email: IToshkov@cbiolabs.com*

people Appointments – Obituary

APPOINTMENTS

Prof. Christof Niehrs, Head of the Division of Molecular Embryology, is going to take office as the Director of the lately established DKFZ-ZMBH-Alliance. Therefore he resigned the chair of the Scientific Council of the DKFZ. **Dr Jörg Hoheisel**, Head of the Division of Functional Genome Analysis, has been elected new chairman by the scientific council.

On July 1, 2008, **Prof. Andreas Trumpp** became Head of the Division Cell Biology. Trumpp investigates the molecular constitution of stem cells, especially those of tumor stem cells. Another focus lies on stem cells which induce migration of metastases. He will continue an already existing collaboration with the University Hospital of Heidelberg.

Dr Aurelio Teleman has been appointed Head of the Helmholtz Junior Research Group Signal Transduction in Cancer and Metabolism within the Research Program Functional and Structural Genomics.

Dr Bernhard Korn, previously member of the Division of Molecular Genome Analysis at the DKFZ, has been appointed Head of the Core Facility Genomics and Proteomics.

Since the beginning of 2008 **Dr Stefanie Seltmann** is in charge of the office for Press and Public Relations. The biologist graduated at the DKFZ from 1992 to 1995 at Prof. Melvyn Little's Lab, before

she started a career in journalism with a three months' training at the press office of the DKFZ. Being a radio journalist for many years, Seltmann continuously stayed in contact with the DKFZ and reported current cancer topics.

In March 2008, **Prof. Hans-Ulrich Kauczor**, Head of the Division of Radiology, took up the position as Medical Director of the Department of Diagnostic and Interventional Radiology at the Radiological University Hospital Heidelberg.

Dr Fabian Kiessling, member of the Division of Medical Physics in Radiology, accepted a W3 professorial chair on Experimental Molecular Imaging of the Medical Faculty University and took office as the Director of the Research Field Molecular Imaging at the Helmholtz-Institute for Biomedical Engineering at the RWTH Aachen

Dr Philipp Stroebel, former MD student at the Division of Cell Pathology of the DKFZ, was appointed W3 Professor of Microscopical Anatomy and Histopathology at the Medical Faculty Mannheim of the University of Heidelberg.

RETIREMENT

Prof. Volker Schirmacher, Head of the Division of Cellular Immunology, retired on June, 30 2008.

OBITUARY

Prof. Annemarie Poustka, who deceased at the age of 63 on May 3, was the Head of the Division of Molecular Genome Analysis of the DKFZ since 1990. She was a pioneer of genome research in Germany, starting her scientific career at the European Molecular Biology Laboratory (EMBL) in Heidelberg in the 80's. At that time she was already a mother of three children, who was efficiently supported in all her activities by her husband. She rapidly became a leading scientist in the German Human Genome Project, was Speaker of the National Genome Network, and Member of the Board of Trustees of the International Human Genome Organisation (HUGO). As Head of her Division, Annemarie Poustka did not only determine the direction of a successful scientific team but was also a knowledgeable and warm-hearted supervisor of a large group, educating a whole generation of students for whom she became a model in any respect. She will be commemorated as a charismatic humane personality with a unique Austrian charm.

people

Awards to DKFZ Scientists



Prof. Petra Boukamp, Head of the Division of Genetics of Skin Carcinogenesis was awarded the Dermato-Oncology-Prize 2008 endowed with 5,000 Euros. The Arbeitsgemeinschaft Dermatologische Forschung (Study Group Dermatologic Research) dedicates this award to highly skilled German-speaking scientists who contribute continuously innovative and high-class research results in the field of Dermato-Oncology.



Out of 157 suggested projects the scientific review panel of the portuguese BES Innovation National Contest selected the project proposed by **Rui Nobre**, PhD student of the Division Characterization of Tumorviruses. For developing an assay which aims at facilitating and accelerating the Screening of Human Papilloma Viruses (HPV) he won the first prize throughout all categories. The award is endowed with 85,000 Euros .



Acknowledging her scientific achievements and her personality the German Academy of Sciences Leopoldina elected **Prof. Ingrid Grummt**, Head of the Division of Molecular Biology II, as a member. The Leopoldina is the world's oldest continuously existing academy for medicine and natural sciences, which has been forwarded to the German National Academy of Sciences only recently.



Dr Stefan Pfister, Division of Molecular Genetics at the DKFZ and pediatric oncologist at the Center for Childhood and Juvenile Medicine of the University Hospital Heidelberg, was awarded the Dr Hella Bühler-Preis 2007 of 100,000 Euros for his groundbreaking research on malignant brain tumors in children. He identified typical alterations in the genome of tumor cells which may serve as prognostic factors regarding disease progress and therapy response.



Dr Martina Pötschke-Langer, in charge of both the staff position Cancer Prevention and the WHO-Center of Tobacco Control, was conferred the Federal Cross of merit. In the laudation, Prof. Peter Frankenberg, Baden-Württemberg's Minister of Science, Research and the Arts, emphasized the long lasting strong commitment in the fight against smoking, including the protection of non-smokers from passive smoking.



The German Society for Endocrinology conferred this year's Novartis Prize on Young Endocrinology to **Dr Alexandros Vegiopoulos**, a member of the Emmy Noether Junior Research Group Molecular Metabolic Control. In his application Vegiopoulos described the recently discovered ability of prostaglandins to efficiently regulate the whole body's lipid metabolism. The award is endowed with 10,000 Euros.

The Team of **Klaus Leibe**, PD **Dr Ralf Bischoff**, PD **Dr Frank Breitling**, **Dr Simon Fernandez**, **Dr Thomas Felgenhauer** and **Dr Volker Stadler** (below, from left) who work together in the Junior Research Group Chip-based Peptide Libraries received the Science Award 2008 of the Stifterverband für die Deutsche Wissenschaft e. V. They developed an efficient method to prepare peptide arrays at lower costs, but with higher capacity than usual chips. The researchers share the remarkable prize of 50,000 Euros with their cooperation partners at the Fraunhofer Institute for Production Engineering and Automation in Stuttgart.



people

Awards to Alumni



The Walther und Christine Richtzenhain-Prize 2007 was awarded to **Dr Lore Florin**, formerly graduate student in the Division Signal Transduction and Growth Control. With the grant of 4,500 Euros the jury acknowledged Florin's doctoral thesis on the trans-regulatory function of the transcription factor AP-1 and the identification of its target genes exemplified by skin regeneration.



Prof. Dr Hans-Ulrich Kauczor, former Head of the Division of Radiology and now Medical Director of the Department of Diagnostic and Interventional Radiology at the Radiological University Hospital Heidelberg, has been elected Vice President of the European Society of Thoracic Imaging.



Prof. Simone Fulda, formerly member of the Clinical Cooperation Unit Pediatric Oncology at the DKFZ and now Head of the Research Group Apoptosis and Cancer Therapy at the Children's Hospital, University of Ulm, received the Georg-Zimmermann Research Award 2007/2008. The prize of 10,000 Euros is granted for her research on apoptosis mechanisms in tumor cells.



Dr Christoffer Gebhardt, formerly doctoral student and post-doc at the Division Signal Transduction and Growth Control and now resident and leader of a junior research group at the Department of Dermatology and Venereology at the University Hospital Heidelberg, received a fellowship grant of 25,000 Euros. With this grant the German Dermatologic Society supports his research project on molecular mechanisms induced by environmental factors leading to promotion of malignant melanoma.



A very special honour was granted to **Prof. Jürgen Schweizer**, formerly Head of the Research group "Differentiation of normal and neoplastic skin": Due to his achievements on hair keratins and skin tumorigenesis the European Hair Research Society designated a research award after the former DKFZ scientist. This year, applications for the "Jürgen Schweizer Award" are invited for the first time.



Dr Konrad Buschbeck, Treasurer of the Alumni Association, received the Medal of Honour of the Foundation for Polish Science (FNP). In the laudation the importance of Dr Buschbeck's consultative activities as the first Science Attaché at the German Embassy in Warsaw (1999-2003) for FNP was emphasized. The medal also acknowledges his efforts with respect to the development of scientific co-operation between researchers from both countries.



Prof. Harald zur Hausen, former chairman of the DKFZ Management Board, was honored with the Prize 2006 of the German Cancer Aid. This award of 10,000 Euros was conferred to him in recognition of his fundamental findings in a vaccine against Human Papilloma Viruses (HPV). For the same reason the Virologist was appointed doctor honoris causa by the Medical Faculty of Würzburg University.

Additionally, zur Hausen is one of the awardees of the Gairdner International Award dedicated to internationally leading scientists in medical research. This jury also acknowledged zur Hausen's exceptional scientific contributions relating infections of HPV with cancer. Moreover, the virologist received the 2008 UICC Outstanding Volunteer Award for Excellence in Cancer Control for his fight against cancer and is the winner of the AACR Award for Lifetime Achievement in Cancer Research 2008.

excursion

Exciting insights into a Global Chemical Company

by Gerhard van Kaick

Early in the morning a highly motivated group of 37 visitors from DKFZ, predominantly guest scientists, arrived at gate 2 of the "BASF-City", spreading over an area of 10 squarekilometres with 33.000 employees.

The global company BASF with its headquarters in Ludwigshafen is well known for producing a wide range of chemicals: The portfolio ranges from basic petrochemicals and inorganics to intermediates and products for special requirements of external markets. To this end, the company explores and produces crude oil and natural gas. To date, BASF with worldwide 95,000 employees in five continents belongs to the leading global producers of styrenics, engineering plastics and polyurethanes. It is also a major supplier of agricultural products and fine chemicals for farming, food processing, human and animal food, and finally provides products for pharmaceutical and personal care industries. The company's main industrial customers are found in the pharmaceutical and the textile branches as well as in construction and automobile industries.

The fascinating history and the actual status of this worldwide leading chemical company, founded in 1865 by Friedrich Engelhorn, was presented by Dr Barbara Jessel in the newly erected visitor center which is passed by more than 50,000 visitors per year.

With regard to our group of researchers we were given a special lecture by Dr Nina Baudendistel, a former scientific member of the DKFZ. She introduced us to the highly interesting field of modern biotechnology. According to the United Nations Convention biotechnology encompasses "any technological application that uses biological systems, living organisms or derivatives thereof, to make or modify products or processes for specific use". The term "red biotechnology" is applied to medical processes,



The group of guest scientists enjoyed a varied and instructive day at BASF city.

while "green" is associated with agricultural matters and "blue" refers to marine or aquatic applications. The focus of Baudendistel's presentation was the "white" or industrial biotechnology exercised at BASF.

In this subgroup of biotechnology living cells – from yeast, moulds, bacteria and plants – and enzymes extracted thereof are used to synthesize products with preferable characteristics, i. e. for example easy degradation, low in energy requirement and in waste.

After these excellent presentations our group had a break at the "Visitor Center". There, different facilities offered the opportunity to explore interactively what BASF is producing and developing. Afterwards, a bus took us to the Agricultural Center "Limburgerhof" 30 km away for a good lunch, invited by BASF, to be restored for the afternoon visit.

During the second half of the day Dr Rudolf Frank told us about the ideas, efforts and results in agricultural science. We learned that as many as 800

scientific studies are required to obtain registration for one new crop protection product. The products must be safe for man, animals and the environment, especially with regard to the protection of drinking water. Along with pharmaceuticals, crop protection products are among the substances that are most closely scrutinized. Similar to pharmaceutical research only one of about 140.000 tested substances meet the stringent requirements of consumer and environmental protection. As a rule, around 10 years pass from the discovery and research to the market launch of a new crop protection product.

When we went home at the end of the day we all were impressed by the dense information about research fields at BASF beyond oncology and highly recognized the insight in the enormous logistic efforts needed to become a leading industrial chemical company.

Local event

Encounter with Riverside Attractions

In the middle of June Heidelberg experienced an absolutely vivid demonstration of the River Neckar as a beautiful natural habitat and a place with a great diversity of recreation opportunities: The city once again took part in the initiative "Lebendiger Neckar" (i.e. "lively Neckar") which offers 60 kilometers of outdoor attractions close to the Neckar riverside, starting at Eberbach going downstream to Mannheim.

During the River Festival Heidelberg closed its streets at the bank for the traffic. Instead, it was opened to pedestrians and cyclists. Visitors of all ages were awaited by a bunch of attractions like the performance of the "Circus Pepperoni", a stunt show of mountain bike cyclists or the dragon boat festival at

actively participate. Different kinds of sports were offered like Nordic walking, petanque, inline skating or jumping on a trampoline.

Last, but not least, a delicious variety of food and beverages attracted young and old folks from Heidelberg and around.



Young acrobats came up with a performance in dizzy height.



Audacious cyclist heading for a wet landing



Visitors of all ages enjoyed the variety of attractions along the Neckar river.

the "Chinese village". On several stages along the river the visitors had the chance to listen to live music with jazz bands, classic music or brass orchestras. Moreover, there were performances of oriental dances, Argentine tango and street dance. The program also included a broad range of topics going from art photography as well as a bicycle on-site inspection to a flea market and a school on zoo animals for children.

The lively atmosphere with time to meet friends and family for a chat was again a guarantee for success. And those who have missed the event will surely get their chance next year.

Dagmar Anders

The most decisive characteristic of the Neckar festival was the possibility to

Left: Tree climbing was one of the attractions for those who preferred active participation.

Right: In the mood for the Big Band sound of the SRH orchestra.



summer festival

A Party with Revolver Heroes and Mouse Crackers

by Stefanie Seltmann

The weather god had good intentions for this year's summer festival at DKFZ: After a cloudy morning with a few drops of rain, the sun appeared just in time for the start of the festival at noon. Due to the promising program as well as the almost traditional barbecue again a great number of DKFZ members and their families followed the invitation to the party.

To attract as many staff members as possible to the event, the cafeteria closed before lunchtime and offered brats and steaks from the barbecue, waffles and Tarte Flambee instead – which was received very well. Around 2 p.m. the first family members arrived to take a look at the kids program, which had a lot to offer: There was magician Karlo Vacko blowing up balloons of all colors

in the 4th DKFZ Cup under this year's motto "DKFZ Goes West". Teams with names such as "Daltons from the ATV Ranch", "Lucky Lykos", "Western Blotlers" or "Do3o Desperados" competed in disciplines such as rodeo and candle shooting. They also lifted beer mugs and fished out apples from a water basin with their teeth. The winners were determined later in the evening in a finale

care department, who came in second, received 12 cocktail vouchers for the cocktail bar at Heidelberg's Crowne Plaza. The winner of the prize for best costume was determined by a "volume of applause comparison"; the prize went to the "Revolver Heroes" on self-made hobbyhorses. They received six vouchers for the DKFZ cocktail bar, which they could use right away in the entrance hall.



The traditional brats from the barbecue are always very popular.

and twisting them into artful hats and swords; kids could make felted wool balls, have their faces painted or pet "wild animals" (giant bristle worms). There was a bouncy castle where kids could get rid of their energy before watching the performances of the children's play "Pimpinella Wants to Join the Circus" and the musical for kids "Around the World in 80 Days". During that time, 16 (!) DKFZ teams in creative costumes were competing



Big eyes upon the encounter with "wild animals" like the giant bristle worm or the grasshopper

in the auditorium where the two finalists topped each other by pantomiming more or less difficult terms, much to the amusement of the audience.

The 4th DKFZ Cup was finally won by the Technical Services team, the "Old Bones". For their outstanding performance, they were awarded the DKFZ traveling trophy and, in addition, received a voucher for a Sunday Brunch for six people. The "Mouse Crackers" team from the animal



This unusual way of locomotion was one of the challenges of the DKFZ Cup.

Here, there was also a late-night performance of belly dancer Aslama, whose name in real life is Ruth Wittmann and who works at the Central Animal Laboratory. Around 9:30 p.m. it was time for "Lights off – Spot on!" in the DKFZ disco where people danced to hot rhythms until long after midnight. At the end, everybody agreed: It was a great party!



Relaxing get-together on a sunny summer day



Who's going to defeat the bull?



Final highlight for young folks and night owls



Obituaries for DKFZ Alumni

Prof. Beatrice L. Pool-Zobel passed away at the age of 59 on May 13. She had kept her private home in Heidelberg since she graduated and worked as a scientist in the former Institute of Toxicology and Chemotherapy at the DKFZ in the 70's and 80's. In recent years, she held a Chair of Nutrition Sciences at the University of Jena, but continued her relationship to the DKFZ by many scientific and personal links. She was also an active member in our Alumni Association since its foundation in 2004. The internationally recognized scientific work of Pool-Zobel was dedicated to cancer prevention by appropriate nutrition. At the University of Jena she was an esteemed member of her Faculty and an admired academic teacher. With Beatrice Pool-Zobel, the Alumni Association loses an amiable member who will be kept in good memory.

Prof. Hans Osswald died at the age of 82 on August 2. In 1964, soon after the foundation of the German Cancer Research Center, he had joined the former Institute of Toxicology and Chemotherapy. From the very beginning he was Head of the Research Group Experimental Chemotherapy which became an independent Division in 1974. Osswald's research was devoted to translational approaches in cancer therapy which he realized together with clinicians long before translational cancer research became a catchword. He made essential contributions to his research field and to the reputation of the DKFZ. After his retirement in 1991, Hans Osswald kept strong links to the DKFZ. He will be remembered as a kind personality with an empathic and balancing character.

Professor Claus O. Köhler deceased at the age of 73 on August 27. He worked at the DKFZ for three decades, starting in the former Institute of Documentation and Statistics in 1965. In the frame of this institute, he developed the central core facility Electronic Data Processing and remained responsible for this service division until 1985. After this period, Claus Köhler was Head of the Division of Medical and Biological Informatics until 1995. His scientific work was devoted to the design of information systems for the benefit of the patient. He was also a committed academic teacher in Medical Informatics, educating many students in the early days of this discipline in a joint effort of the University of Heidelberg and the Advanced Technical College in Heilbronn. After his retirement, Claus Köhler maintained his dedication to the DKFZ, and stayed in close contact with many colleagues, who will honour him in memory.

Imprint

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